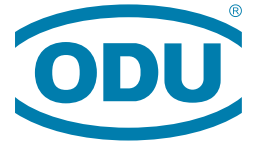


A PERFECT ALLIANCE.



# ODU MEDI-SNAP<sup>®</sup>

Miniature circular connectors with  
Push-Pull locking as well as Break-Away function

PLASTIC HOUSING  
METAL HOUSING



ODU MEDI-SNAP<sup>®</sup>

ODU MINI-SNAP<sup>®</sup> F

ODU MINI-SNAP<sup>®</sup> L/K/B

ODU MINI-SNAP<sup>®</sup> PC

ODU MINI-MED<sup>®</sup>

ODU AMC<sup>®</sup>

---

# ODU MEDI-SNAP®

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## FEATURES

- 75% lighter than comparable metal connectors
- Minimal requirements in terms of installation and maintenance
- Space-saving product design
- High chemical resistance
- Fully sterilizable
- Quick mating via Push-Pull locking
- Easy-to-release Break-Away function

---

## APPLICATIONS

- Medical
- Industrial
- Digital test and measurement



All shown connectors are according to IEC 61984:2008 (VDE 0627:2009); connectors without breaking capacity (COC).

ODU MEDI-SNAP® is UL-approved under File E110586.

All dimensions are in mm.

Some figures are for illustrative purposes only.

Subject to change without notice. Errors and omissions excepted.

We reserve the right to change our products and their technical specifications at any time in the interest of technical improvement.

This publication supersedes all prior publications.

This publication is also available as a PDF file that can be downloaded from [www.odu-usa.com](http://www.odu-usa.com)

Issue: 2019-01

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# A PERFECT ALLIANCE.

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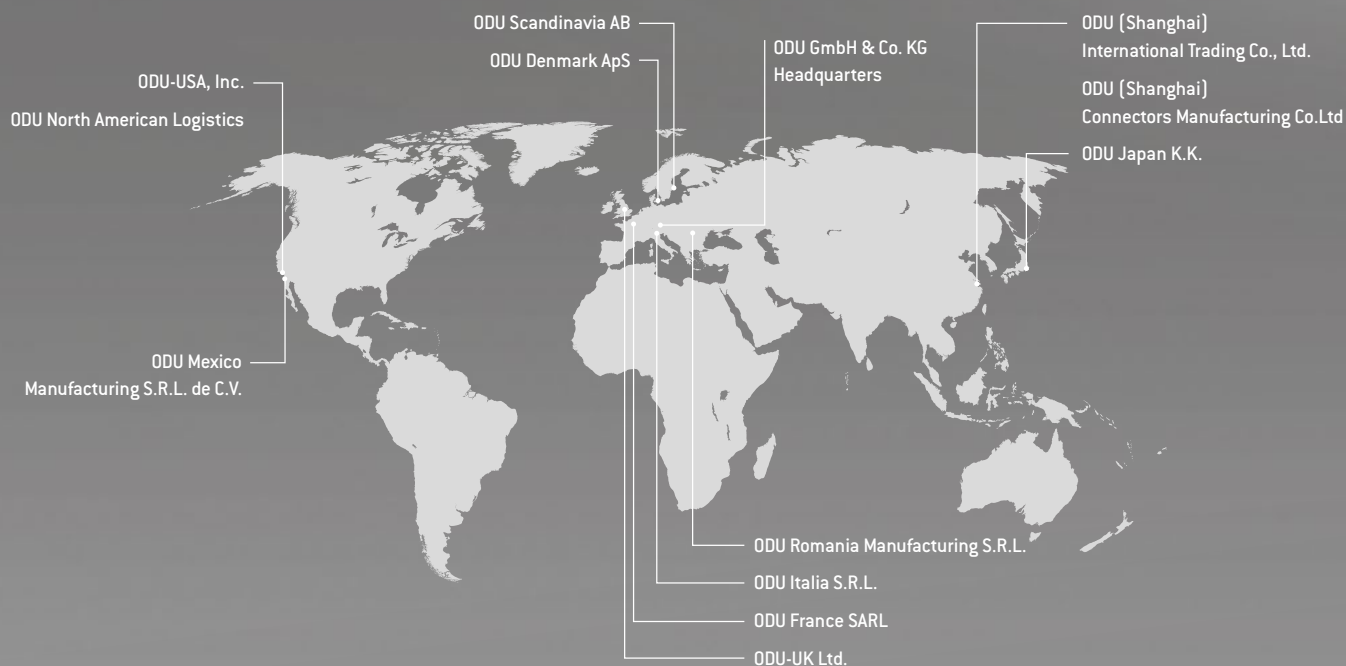
**CREATING CONNECTIONS, BUILDING ALLIANCES, COLLABORATING INTO THE FUTURE:** WHETHER TWO TECHNICAL COMPONENTS COME TOGETHER TO FORM A UNIT OR PEOPLE COME TOGETHER TO STRIVE FOR GREAT RESULTS – THE KEY IS TO ASPIRE IN ACHIEVING SUPERB RESULTS. THIS GOAL DRIVES OUR WORK. **PERFECT CONNECTIONS THAT INSPIRE AND DELIVER ON THE PROMISES.**





A PERFECT ALLIANCE.

# ODU WORLDWIDE



## ODU GROUP OVERVIEW

- More than 75 years of experience in connector technology
- A turnover of 170 million Euro
- Over 1,900 employees worldwide
- 9 sales subsidiaries in China, Denmark, France, Germany, Italy, Japan, Sweden, the UK and the US as well as 5 production and logistics sites
- All technologies under one roof: Design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly

As of February 2018

## CERTIFIED QUALITY

- DIN EN ISO 9001
- IATF 16949
- DIN EN ISO 14001
- ISO 13485
- Wide range of UL, CSA, VG and DVA licenses
- UL certified cable assembly

For a complete list of our certifications, please visit our website.

# INGENIOUS IDEAS PERFECT SOLUTIONS

ODU'S PRODUCT PORTFOLIO.



## COMPACT MODULAR CONNECTOR SOLUTIONS

- Application-specific hybrid interface
- For manual mating and automatic docking
- The highest packing density
- Flexible modular construction
- Multitude of data transmission modules
- Variety of locking options available
- For the transmission of signals, power, high current, high voltage, coax, high-speed data, fiber optics and other media such as air or fluid.
- Mating cycles scalable as required from 10,000 to over 100,000 (1 million)



## PUSH-PULL CIRCULAR CONNECTORS

- Circular connector series in robust metal or plastic housing
- Contacts for soldering, crimping and PCB termination
- Optional selectable Push-Pull locking ensuring a secure connection at all times as well as easy to release Break-Away function
- 2 up to 55 contacts
- IP 50 to IP 69
- Autoclavable for medical applications
- Hybrid inserts for combined transmission



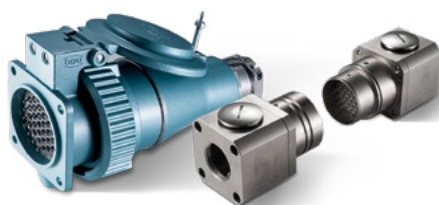
## ELECTRICAL CONTACTS

- Versatile connector technologies
- Outstanding reliability, lifetime and durability
- Up to 1 million mating cycles
- Current-carrying capacity of up to 2,400 amperes and more
- Rugged contact systems, suitable even for harsh environments
- Economical solutions for automatic processing



A PERFECT ALLIANCE.

+ Versatile connector solutions for transmission of power, signals, data, or media – ODU never fails to offer the right interface when quality and absolute reliability are the top priorities.



#### HEAVY-DUTY & DOCKING AND ROBOTIC CONNECTOR SOLUTIONS

- Extremely durable even under extreme /harsh environments
- Interference-free and secure connection, even under vibration
- Up to 500 A (higher currents upon request)
- High contact security due to the springwire technology
- High pin density due to a minimum contact diameter
- Low contact resistance



#### APPLICATION AND CUSTOMER-SPECIFIC SOLUTIONS

- Contacts, connectors and assemblies for the highest technical requirements as well as special applications
- First-class implementation expertise
- High level of vertical manufacturing – all competences and key technologies under one roof
- Expert advice based on mutual partnership
- Fast development and production



#### CABLE ASSEMBLY

- Complete systems from a single source based on years of assembly expertise
- State-of-the-art production facilities with 100% end testing, high-voltage testing, component testing and pressure testing up to 100 bar
- Cleanroom production
- Hot-melt and high-pressure injection molding
- Customer-specific labeling
- Rapid prototyping of samples

# MORE THAN A CONNECTION

OUR KNOW-HOW FOR YOUR SUCCESS.

All shown connectors are according to DIN EN 61984:2009 connectors without breaking capacity (COC)!

General tolerances to DIN ISO 2768-mK		Tolerances to DIN ISO 8015		name		designation	
2013	date	2013	date	Unterblum	Break-A		
prep.	11.06.						
app.							
norm.							

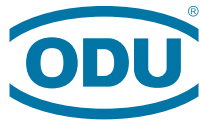
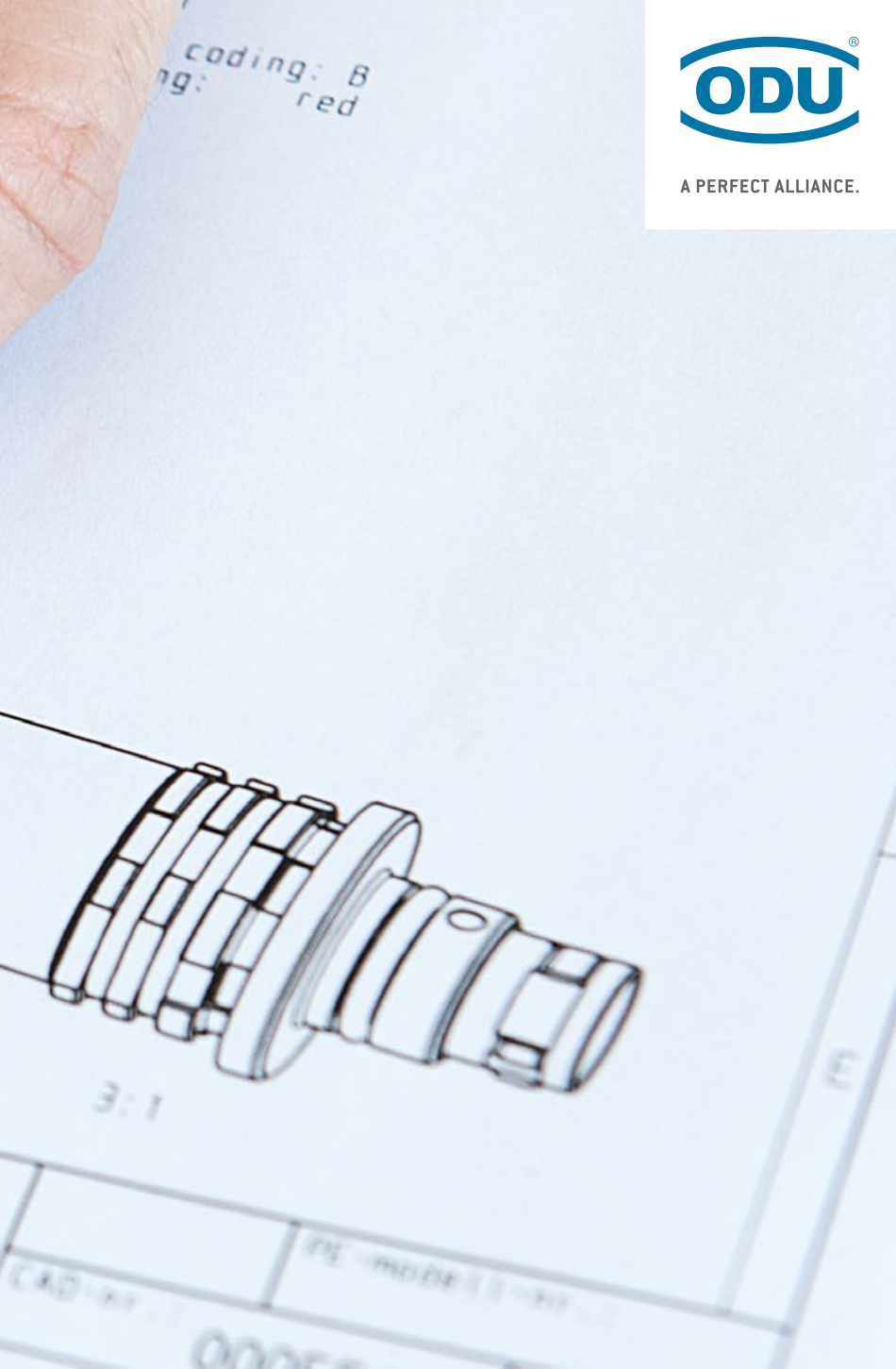
## HIGH PERFORMANCE CONNECTOR TECHNOLOGY FOR DEMANDING KEY MARKETS

Customers rely on ODU technology wherever first-class, high-performance connector solutions are required. All our skills go into our products to ensure your success. In addition to the top quality, reliable stability and maximum flexibility in customer-specific requirements, our products also stand for dynamics, reliability, safety, precision, efficiency and sustainability. And they guarantee unrestricted functionality for the final product due to our high quality connectors. ODU – A PERFECT ALLIANCE.

## APPLICATION-SPECIFIC SOLUTIONS

Demands that can't be pigeon-holed call for creative specialists who think outside the box. ODU offers the type of expertise that focuses solely on the specific requirements of our customers. For every development order we get, we not only perform a thorough check to make sure it's feasible, we intensively incorporate our customers in the ongoing design process. This guarantees an impressive, custom-fit final result. Our solutions are frequently based on the modifications of our products, especially for the ODU MINI-SNAP and ODU-MAC connectors.





A PERFECT ALLIANCE.

MEDICAL

TEST AND MEASUREMENT

MILITARY AND SECURITY

INDUSTRIAL

ENERGY

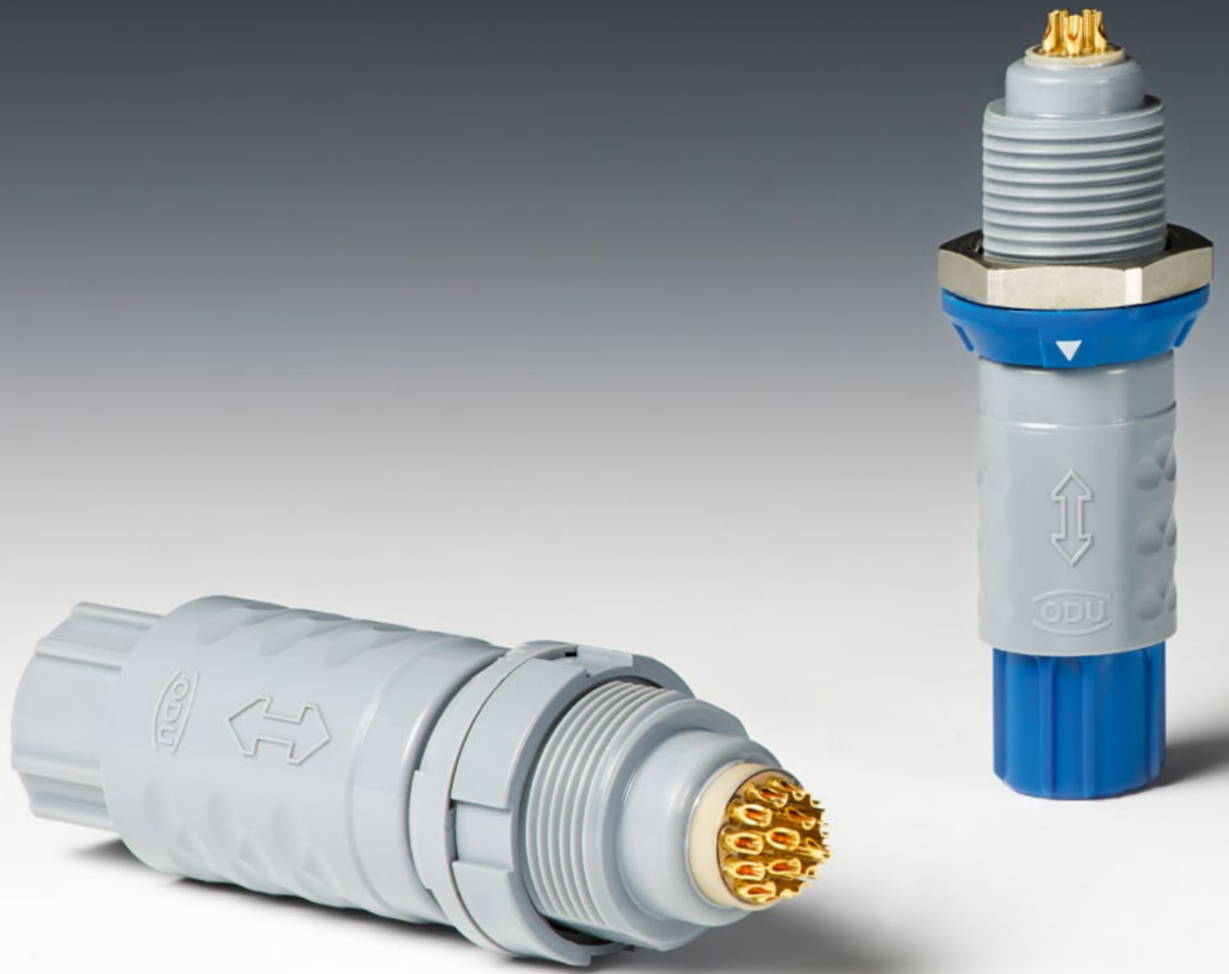
EMOBILITY

### HIGH LEVEL OF VERTICAL INTEGRATION

ODU combines all the competences and key technologies for the connector manufacturing. These include design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly and our own test laboratory.

### INDIVIDUAL CABLE ASSEMBLY

Our production skills together with our cutting edge production facilities from Europe, China and the USA enable us to deliver to our customers locally tested assemblies and also global ones.






ODU MEDI-SNAP®



## PRODUCT INFORMATION

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# THE COMPLETE SERIES OF ODU CONNECTORS AT A GLANCE

	Coding	Size	No. of possible mechanical codings	Plug diameter in mm	Max. cable diameter in mm	Number of max. contacts	Solder	Crimp	PCB	IP protection degree IEC 60529:2013 in mated condition	IP protection degree IEC 60529:2013 in unmated condition	Housing material	From page
<b>ODU MEDI-SNAP® PLASTIC</b>													
	Pin and groove	1	6	13.7	6.5	14	•	•	•	Up to IP67	Up to IP50	PSU Gray, Black PEI Black	<a href="#">24</a>
	Pin and groove	2	3	18.5	9.2	26	•		•	Up to IP64	IP50	PSU Gray	<a href="#">54</a>
<b>ODU MEDI-SNAP® METAL</b>													
	Pin and groove	1	3	14	6.5	14	•	•	•	Up to IP64	Up to IP68	Metal (Brass)	<a href="#">74</a>

## FURTHER PRODUCTS OF THE ODU PUSH-PULL CIRCULAR CONNECTOR SERIES:



- Coding over pin and groove
- 2–40 contacts
- 6 sizes
- IP50 and IP68
- Contacts for solder, crimp and PCB termination

- Coding over half-shell
- 2–27 contacts
- Low weight
- IP67
- 3 sizes
- Plastic connector plug housing

- Coding over half-shell
- 2–27 contacts / mixed inserts
- 5 sizes
- IP50 and IP68 with same outer diameter possible
- Contacts for solder, crimp and PCB termination

- Coding over insulator
- 2–10 contacts / mixed inserts
- 3 sizes
- IP50 and IP68 with same outer diameter possible
- Contacts for solder, crimp and PCB termination

- Push-Pull and Break-Away version
- 3–55 contacts
- 6 sizes
- Watertight – IP68
- Easy-Clean and High-Density version
- Tested acc. MIL
- Low weight (aluminium connector plug housing)

# THE CIRCULAR CONNECTOR MEDI-SNAP® WITH PLASTIC AND METAL HOUSING



The ODU MEDI-SNAP® combines distinctive coding options with over 2,000 mating cycles. The efficient plastic connector is available both with user-friendly Push-Pull locking and the easy-to-release Break-Away function, which comes as a premolded plug & play solution.

Its space-saving product design enables top performance even in the smallest available construction space. Further due to its plastic housing, this connector is up to 75% lighter than comparable metal products. The great diversity makes the ODU MEDI-SNAP® perfectly suited to your requirements in medical technology, industrial electronics as well as digital test and measurement technology.

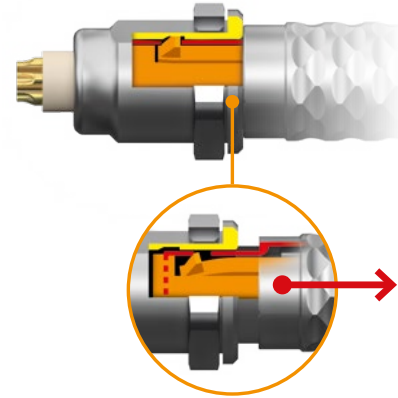
The IEC 60601-1:2012 (VDE 0750-1:2013) standard poses special requirements. In detail it defines strict requirements in regards to protection against electrical shock of medical devices and their components for both patients and users. The various protection measures (MOP: Means Of Protection) are described in detail from page [26](#) and [56](#).

## VERSATILE CONFIGURATION OPTIONS

There are 7 color codings, up to 6 mechanical codings, 2 sizes, 3 termination types and a wide range of different contact inserts available.

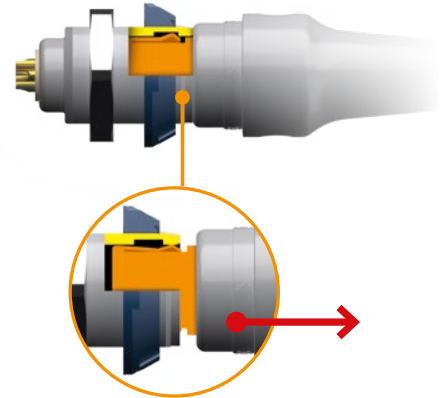
## FUNCTIONAL PRINCIPLE OF THE PUSH-PULL LOCKING

The proven Push-Pull locking ensures establishing connections easily in less than a second. It is **self-securing** – this means that an accidental release by pulling on the cable can be precluded. During the mating process, the connector’s locking claws will lock into place in the corresponding grooves in the receptacle and form a dependable connection between the connector and the receptacle. Consequently, when the connection is properly established, an unintentional demating of the connection by pulling on the cable cannot take place. The connection can only be released deliberately, by just pulling back the connector’s outer sleeve. Push-Pull connectors from ODU are available in 2 different standard sizes with diameters from 13.7 mm to 18.5 mm.

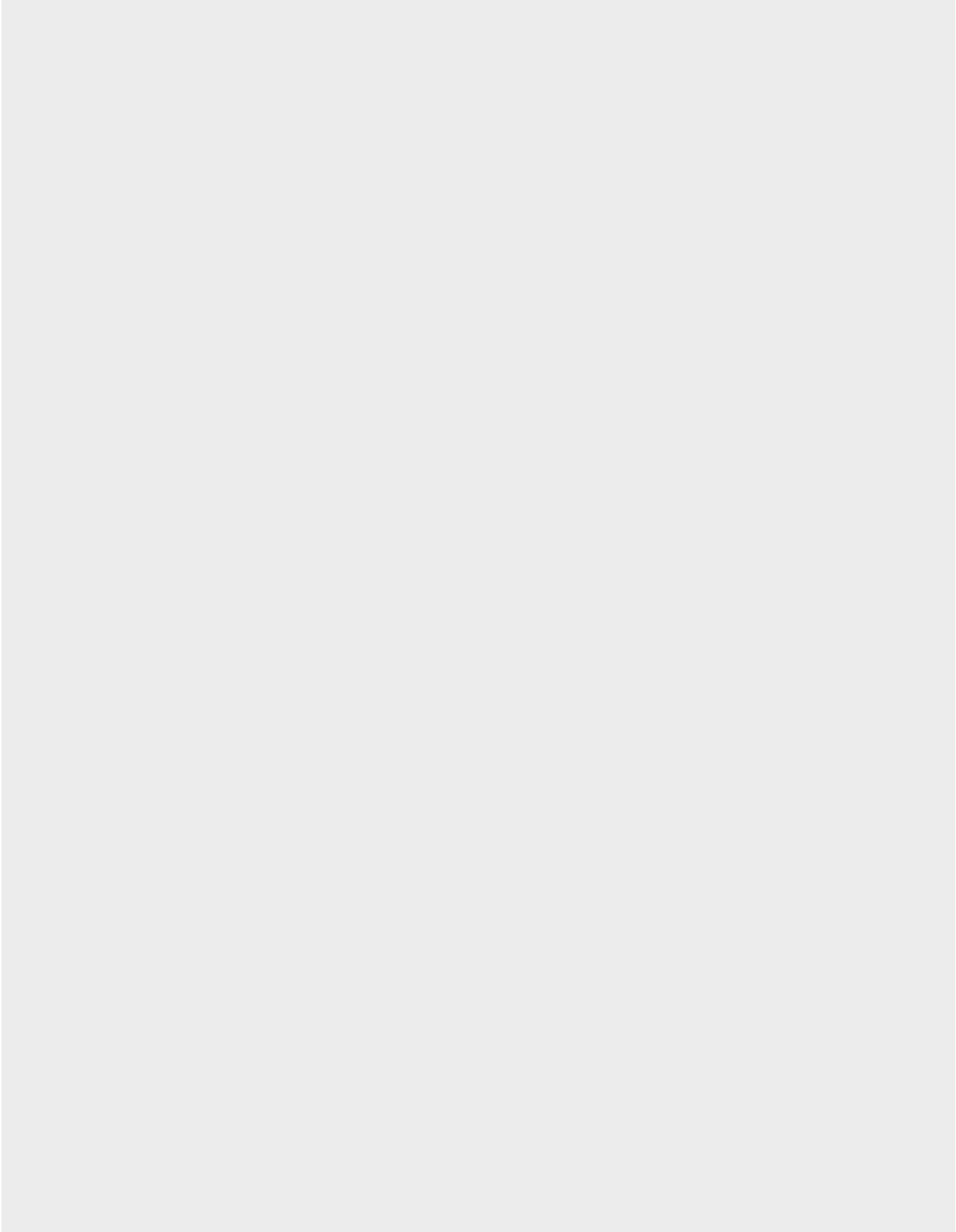


## FUNCTIONAL PRINCIPLE OF THE BREAK-AWAY FUNCTION

The efficient Break-Away function allows for an easy establishment of connections within fractions of a second just like the Push-Pull locking. But furthermore it also features an **emergency release** which enables demating the connection when needed by pulling on the cable. During mating, the connector’s locking claws will lock into place in the corresponding grooves in the receptacle and form a dependable connection between the connector and the receptacle. The sloping shape of the locking claws ensures the “breaking away” of the connection when the connector or cable is pulled with a defined force. The ODU Break-Away connectors are available in 2 different standard sizes in diameters from 13.4 to 18 mm.



# FOR YOUR NOTES



# IMPORTANT ISSUES AT A GLANCE

## WIDE VARIETY OF VERSION

- Plastic housing in 2 sizes
- Metal housing in one size
- Outer diameter of 13.4 mm to 18.5 mm
- 2 to 26 contacts
- IP50, IP64 and IP67 in mated condition / IP68 in unmated condition
- Overmolded as well as freely configurable solutions

## APPLICATIONS AND MATERIALS

The ODU MEDI-SNAP® housings are available in plastic (PSU Gray/Black as well as PEI Black) or brass. Special material housing in PSU White or PEI Gray available on request.

The variety of the ODU MEDI-SNAP® allows it to adapt to your requirements in medical technology, industrial electronics as well as digital measurement and testing technology.

Under general application conditions, the temperature range of the ODU MEDI-SNAP® lies between -50 °C and a maximum of +120 °C, even up to +134 °C in the case of autoclavable connectors (see pag [109](#)).

# TURNUED CONTACTS

Turned contacts are available in diameter 0.5 mm to 2 mm in the following termination types:

**Solder, crimp and PCB.**

Mating cycles	> 5.000
Material	Brass
Plating	Au

## TERMINATION TECHNOLOGIES

	Insulator material PEEK	Contact material Ms
Crimp termination <sup>1</sup>	•	•
Solder termination	•	•
PCB termination (on PCB)	•	•

<sup>1</sup> Crimp-clip contacts available with diameters of 0.7 mm and 0.9 mm

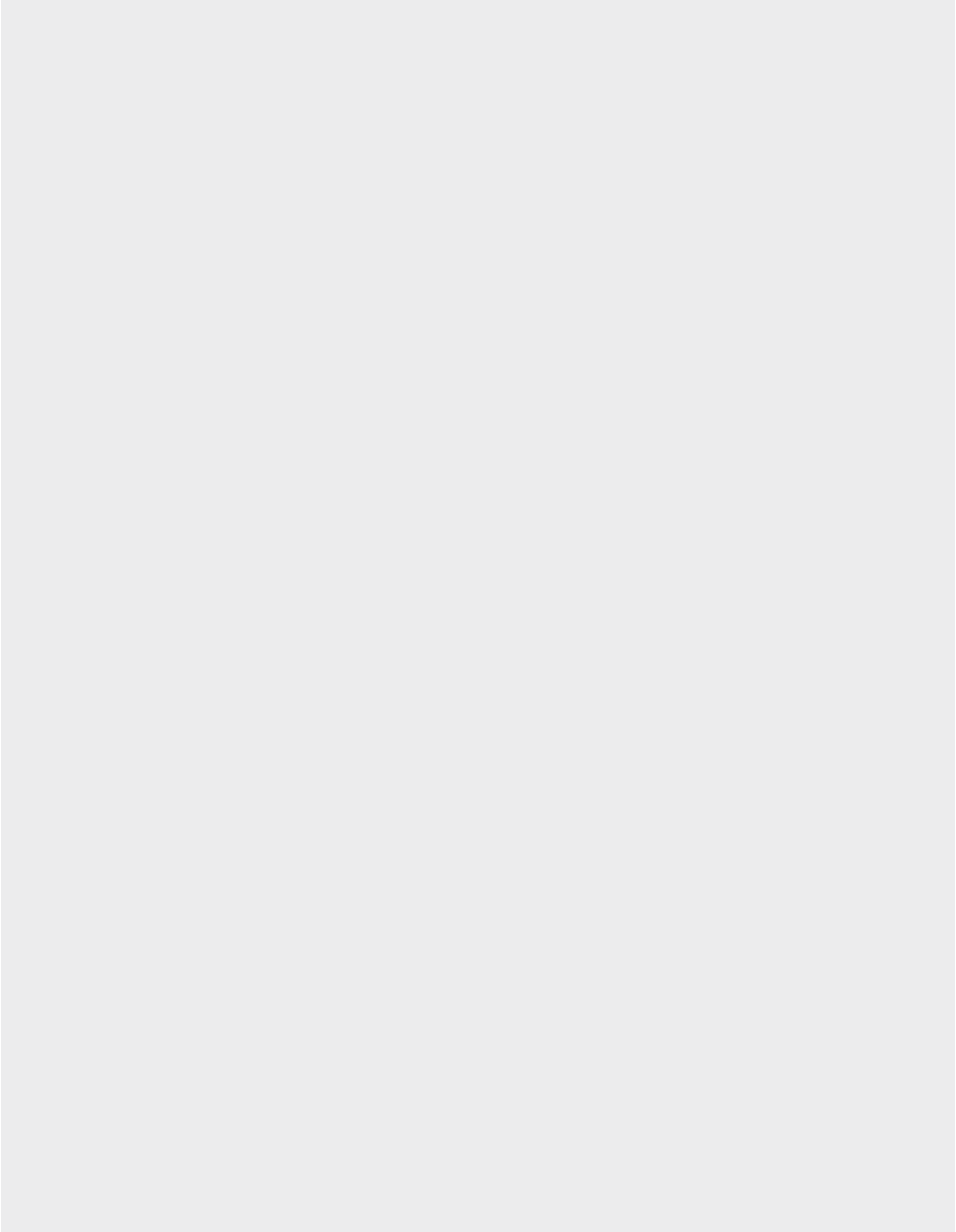
## STANDARD PIN CONTACTS



Information on diameters, termination types and current carrying capacity can be found after the inserts.



# FOR YOUR NOTES







---

# BIT BY BIT TO THE PERFECT CONNECTION

---

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



← Back nut



← Cable collet



← Insulator with contacts



← Connector plug housing



← Receptacle



← Hex nut



# CORRECT CONFIGURING – STEP BY STEP

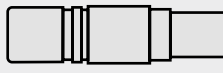
The perfect product for you in just a few steps. These step-by-step instructions show you how to configure your own individual product with the ODU part number key based on a sample configuration.



Connector in style 1 / size 1 / series ODU MEDI-SNAP® / coding 0° / connector plug housing plastic, Gray / insulator PEEK / 14 contacts / pin (solder) Au / termination cross-section AWG 28 / cable diameter 5.3–6.5 mm / standard back nut in the color Blue

## 1. STEP: SERIES (SEE POSITION 4)


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

←  MEDI-SNAP®

## 2. STEP: STYLE (SEE POSITIONS 1, 2 AND 19)

SEE PAGE 28


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

←  STYLE S1 WITH STANDARD BACK NUT

## 3. STEP: SIZE (SEE POSITION 3)

SEE PAGE 24

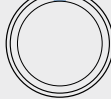
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
S	1	1	M			-									-				0

←  SIZE 1

## 4. STEP: CODING (SEE POSITION 5)

SEE PAGE 39

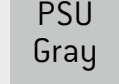
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
S	1	1	M	0		-									-				0

←  CODING 0°

## 5. STEP: HOUSING MATERIAL (SEE POSITION 6)

SEE PAGE 39

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

←  PSU Gray  
PLASTIC, GRAY

6. STEP: INSULATOR MATERIAL (SEE POSITION 8)

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



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

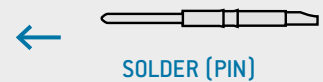
SEE PAGE 40

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



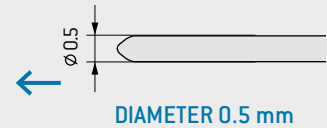
8. STEP: CONTACT TYPE / SURFACE (SEE POSITION 11)

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



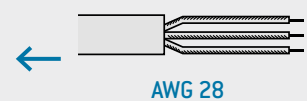
9. STEP: CONTACT DIAMETER (SEE POSITION 12)

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



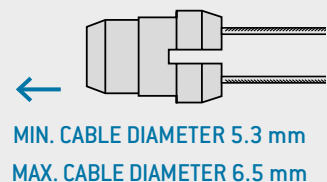
10. STEP: TERMINATION CROSS-SECTION (SEE POSITIONS 13 AND 14)

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



11. STEP: CABLE COLLET SYSTEM (SEE POSITIONS 16 AND 17)

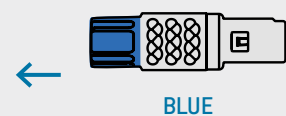
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
S	1	1	M	0	7	-	P	1	4	M	C	C	O	-	6	5		0



12. STEP: COLOR STANDARD BACK NUT (SEE POSITION 18)

SEE PAGE 47

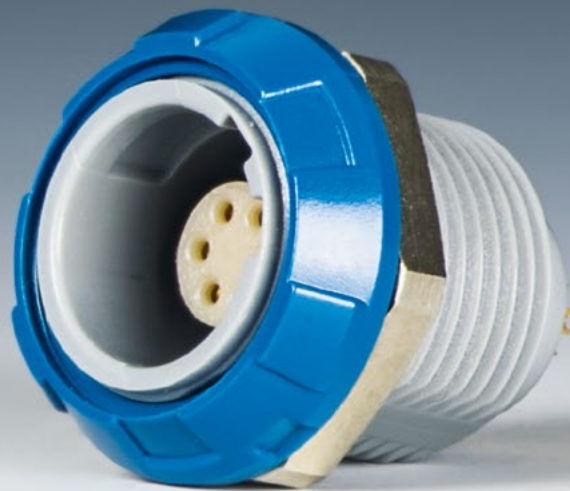
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
S	1	1	M	0	7	-	P	1	4	M	C	C	O	-	6	5	6	0





ODU MEDI-SNAP®





## ODU MEDI-SNAP® WITH PLASTIC HOUSING SIZE 1

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Accessories .....	<a href="#">47</a>

# SUMMARY ODU MEDI-SNAP® PLASTIC HOUSING SIZE 1

The ODU MEDI-SNAP® with plastic housing in size 1 is coded by pin and groove. These circular connectors can have a variety of configurations: numerous styles of connectors, receptacles and in-line receptacles as well as various termination types, contact inserts and color codings.

- Coding over pin and groove
- 7 color codings
- 6 mechanical codings
- 2–14 contacts
- 3 termination types
- Contacts for solder, crimp and PCB termination
- A selection of numerous connectors as well as receptacles and in-line receptacles
- IP50/IP64 and IP67 available in mated condition
- Up to 5,000 mating cycles

STRAIGHT PLUG – PUSH-PULL		2,000 mating cycles	P. 28
IP50		S	1
		S	2
IP64		S	4
RIGHT-ANGLED PLUG – PUSH-PULL		2,000 mating cycles	P. 30
IP50		W	1
		W	2
BREAK-AWAY CONNECTOR		5,000 mating cycles	P. 31
IP67		A	5

For assembly instructions, please refer to our website: [www.odu-usa.com/downloads/assembly-instructions](http://www.odu-usa.com/downloads/assembly-instructions)

**IN-LINE RECEPTACLE IEC 60601-1** 5,000 mating cycles **P. 32**

IP50



2 MOOP<sup>1</sup>  
1 MOPP<sup>1</sup>

K	1
K	2

**RECEPTACLE IEC 60601-1** 5,000 mating cycles **P. 33**

IP50




2 MOOP<sup>1</sup>  
1 MOPP<sup>1</sup>

G	1
G	5
G	6
(On request)	
G	8

**RECEPTACLE IEC 60601-1** 5,000 mating cycles **P. 35**


IP50



2 MOOP<sup>1</sup>  
2 MOPP<sup>1</sup>

G	9
---	---


IP64 / IP67



2 MOOP<sup>1</sup>  
2 MOPP<sup>1</sup>

G	4
G	E

IP64 / IP67 / IP68<sup>2</sup>



2 MOOP<sup>1</sup>  
2 MOPP<sup>1</sup>

G	A
---	---

**ONE-PIECE RECEPTACLE IEC 60601-1** 5,000 mating cycles **P. 38**

IP50



1 MOOP<sup>1</sup>  
0 MOPP<sup>1</sup>

G	2
---	---

**MEANS OF OPERATOR PROTECTION (MOOP) / MEANS OF PATIENT PROTECTION (MOPP)**

Working voltage: 250 V AC, Degree of pollution 2

MOOP / MOPP	Clearance distance to the test finger	Creepage distances to the test finger	Test voltage
	mm	mm	V AC
1 MOOP	≥ 2	≥ 2.5	1,500
2 MOOP	≥ 4	≥ 5	3,000
1 MOPP	≥ 2.5	≥ 4	1,500
2 MOPP	≥ 5	≥ 8	4,000

The information refers to all plugs in mated condition on page 26.

<sup>1</sup>As per IEC 60601-1:2012 [VDE 0750-1:2013] <sup>2</sup> IP68 in unmated condition

# STRAIGHT PLUG



Push-Pull styles

S	1	0	<b>STYLE: 1</b>	IP50
With standard back nut				

S	2	S	<b>STYLE: 2</b>	IP50
With back nut <sup>1</sup> for cable bend relief <sup>2</sup>				

**TECHNICAL DATA**

- Contact configuration from page 40
- Explanation of the degrees of protection (see page 102)
- S1 with color coding



<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 52).

# STRAIGHT PLUG

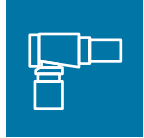


Push-Pull styles


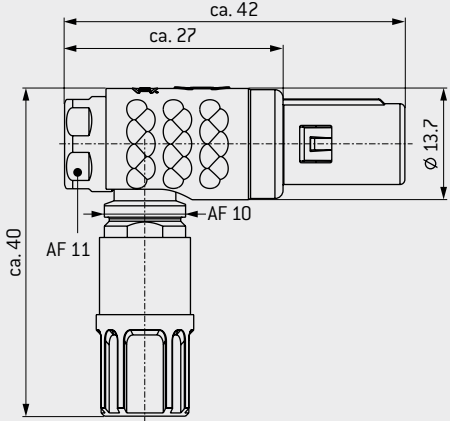
S	4	S	<b>STYLE: 4</b>	<b>IP64</b>
			With back nut <sup>1</sup> for cable bend relief <sup>2</sup>	
<b>TECHNICAL DATA</b>				
<ul style="list-style-type: none"> <li>• Contact configuration from page <a href="#">40</a></li> <li>• Explanation of the degrees of protection (see page <a href="#">102</a>)</li> <li>• IP64 in combination with receptacle style 4 (in mated condition)</li> </ul>				
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	
1	M	-	P	-


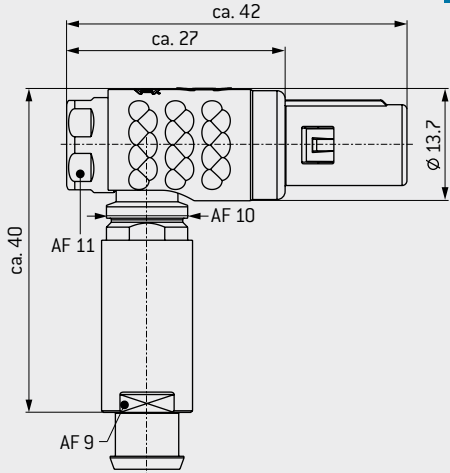
<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page [52](#)).

# RIGHT-ANGLED PLUG



Push-Pull styles

W	1	0	STYLE: 1	IP50
<p>With standard back nut</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>				

W	2	S	STYLE: 2	IP50
<p>With back nut<sup>1</sup> for cable bend relief<sup>2</sup></p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>				

**TECHNICAL DATA**

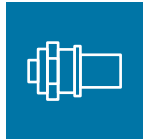
- Contact configuration from page 40
- Explanation of the degrees of protection (see page 102)
- W1 with color coding

Size [1]

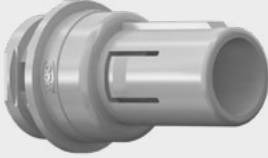
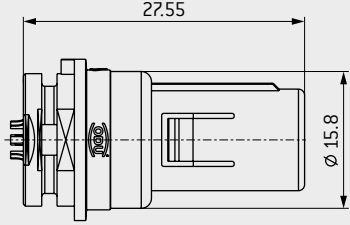
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1	M	-	P																

<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 52).

# BREAK-AWAY CONNECTOR



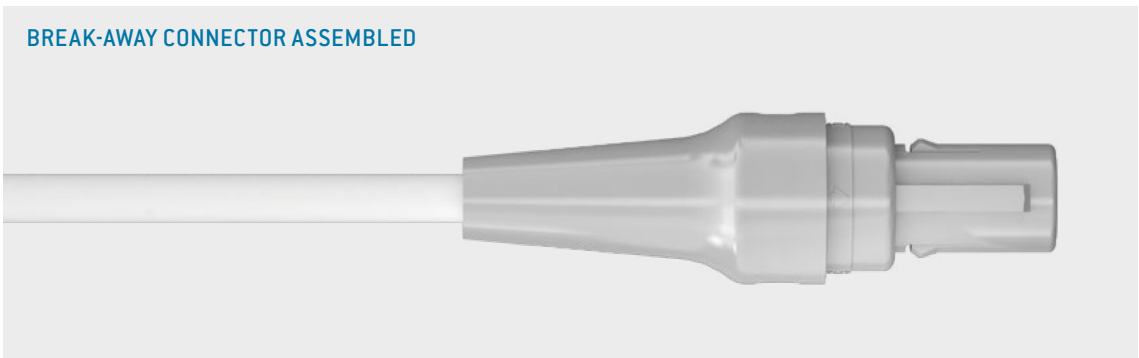
## Break-Away styles

A	5	<b>STYLE: 5</b>	<b>IP67</b>
		Connector suitable for overmolding	
			

### TECHNICAL DATA

- Contact inserts (starting on page 42)
- Explanation of the degrees of protection (starting on page 102)
- IP67 with overmolding in combination receptacle style 4/E/A
- The complete housing with molded insulators made of plastic<sup>1</sup>
- Break-Away connectors available in PSU
- May not be inserted in metal housing.
- Suited for all ODU MEDI-SNAP® receptacles and in-line receptacles made of plastic
- Available with solder contacts

All ODU MEDI-SNAP® Break-Away connectors can be purchased with overmolding and cable assembly.



**BREAK-AWAY CONNECTOR ASSEMBLED**


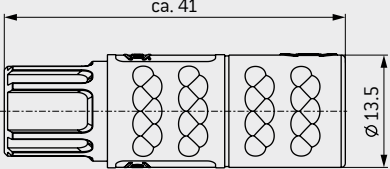
↓	↓	↙	Size [1]																
1	2	3	4	5	6	7	8 <sup>1</sup>	9	10	11	12	13	14	15	16	17	18	19	
1	M	-	0	-	0	0	0	0											


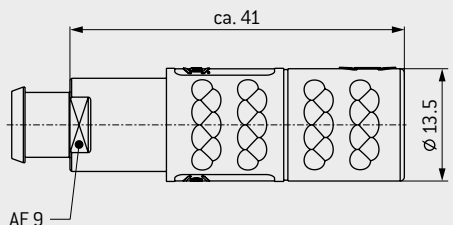
<sup>1</sup> In the case of this style, the connector housing as well as the insulator are made of the housing material PSU.

# IN-LINE RECEPTACLE



Suitable for creating a cable-cable connection

K	1	0	<b>STYLE: 1</b>	<b>IP50</b>
<p>With standard back nut</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>				

K	2	S	<b>STYLE: 2</b>	<b>IP50</b>
<p>With back nut<sup>1</sup> for cable bend relief<sup>2</sup></p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>				

**TECHNICAL DATA**

- Contact configuration from page 40
- Explanation of the degrees of protection (see page 102)
- K1 with color coding

Size [1]

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

<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 52).



# RECEPTACLE

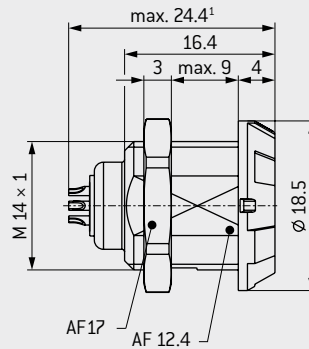


G 1

## STYLE: 1

For front panel installation

IP50



## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14 mm

### TECHNICAL DATA

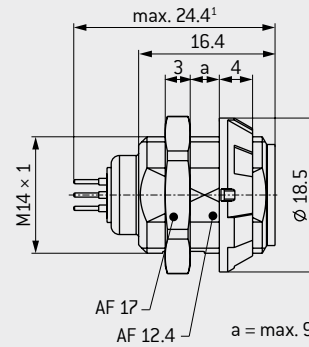
- Contact inserts and PCB layouts (see page 40)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding

G 5

## STYLE: 5

Receptacle with continuous thread, can be installed from front or rear; extension in front of panel is adjustable

IP50



## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14 mm

### TECHNICAL DATA

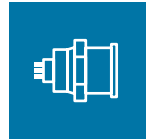
- Contact inserts and PCB layouts (see page 40)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding
- Right-angled PCB contact possible (see page 44)

Size (1)

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

<sup>1</sup> Depending on the insert

# RECEPTACLE



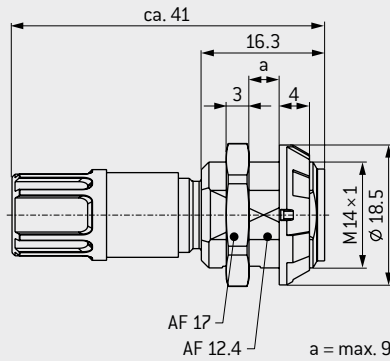
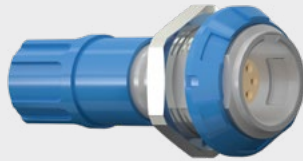
G 6

**STYLE: 6**

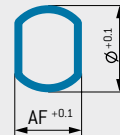
ON REQUEST

IP50

With strain relief, suitable for front and rear installation



PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14 mm

**TECHNICAL DATA**

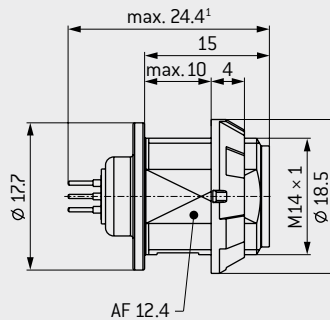
- Contact inserts and PCB layouts (see page 40)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding

G 8

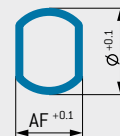
**STYLE: 8**

IP50

For rear panel installation



PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14 mm

**TECHNICAL DATA**

- Contact inserts and PCB layouts (see page 40)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding
- Right-angled PCB contact possible (see page 44)

Size [1]

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

¹ Depending on the insert

# RECEPTACLE

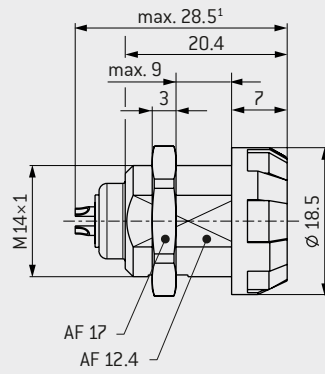
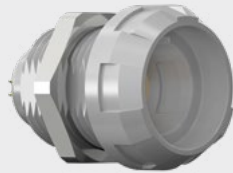


G 9

## STYLE: 9

For front panel installation

IP50



## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14 mm

### TECHNICAL DATA

- Contact inserts and PCB layouts (see page 40)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- Receptacle made of PSU material is available in Gray and Black, other colors on request.

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

¹ Depending on the insert

# RECEPTACLE

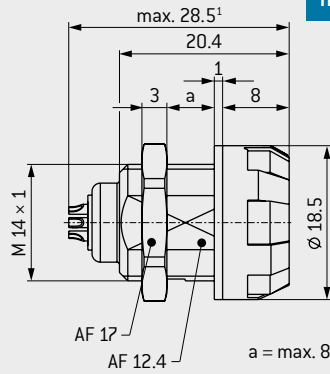
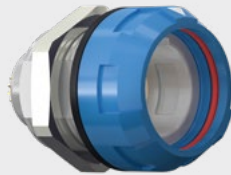


G 4

## STYLE: 4

For front panel installation

IP64/67



## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14 mm

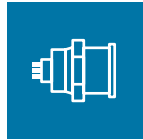
### TECHNICAL DATA

- Contact inserts and PCB layouts (see page 40)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- IP64 in combination with connector style 4 in mated condition (page 31)
- IP67 in combination with connector style 5 in mated condition (page 33)
- Anti-rotation feature
- With color coding

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

<sup>1</sup> Depending on the insert

# RECEPTACLE

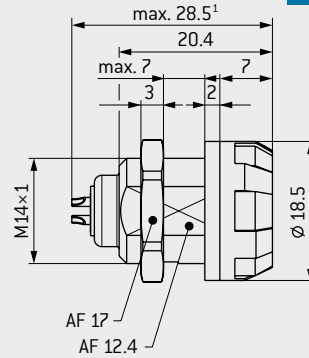
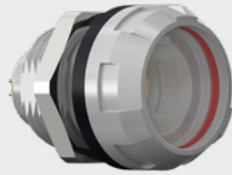


G E

## STYLE: E

For front panel installation

IP64/67



## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14 mm

### TECHNICAL DATA

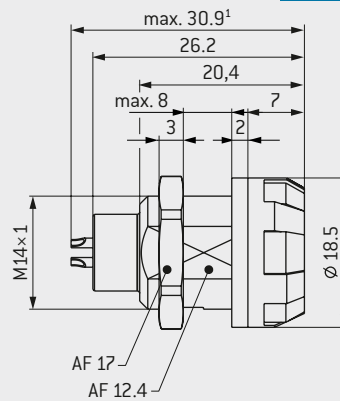
- Contact inserts and PCB layouts (see page 40)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- IP64 in combination with connector style 4 in mated condition (page 31)
- IP67 in combination with connector style 5 in mated condition (page 33)
- Anti-rotation feature
- Receptacle made of PSU material is available in Gray and Black, other colors on request

G A

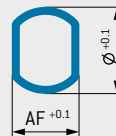
## STYLE: A

For front panel installation

IP64/67/68<sup>2</sup>



## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14 mm

### TECHNICAL DATA

- Contact inserts and PCB layouts (see page 40)
- Explanation of the degrees of protection (see page 102)
- IP68 in reference to the tightness of the end device
- IP64 in combination with connector style 4 in mated condition (page 31)
- IP67 in combination with connector style 5 in mated condition (page 33)
- Anti-rotation feature.
- Receptacle made of PSU material is available in Gray and Black, other colors on request

Size [1]

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

<sup>1</sup> Depending on the insert <sup>2</sup> IP68 in unmated condition

# RECEPTACLE

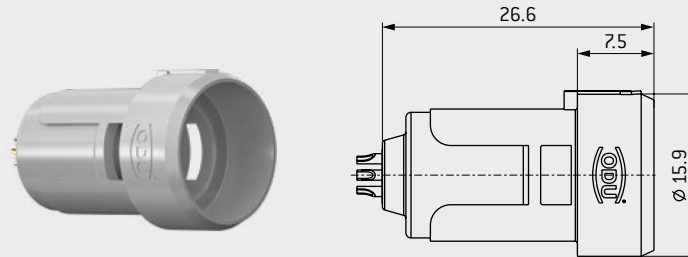


G 2

**STYLE: 2**

**IP50**

One-piece receptacle



**PANEL CUT-OUT**



Ø: 13 mm

**TECHNICAL DATA**

- Contact configuration from page 40
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device (min. panel thickness 4 mm)
- The complete housing with molded insulators made of plastic<sup>1</sup>
- Anti-rotation feature
- Snap-in assembly

Protective cover for receptacle style G2, IP50



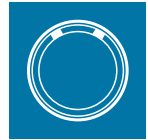
Protective cover for termination area on page 51

Size [1]

1	2	3	4	5	6	7	8 <sup>1</sup>	9	10	11	12	13	14	15	16	17	18	19
		1	M				-	0						-	0	0	0	0

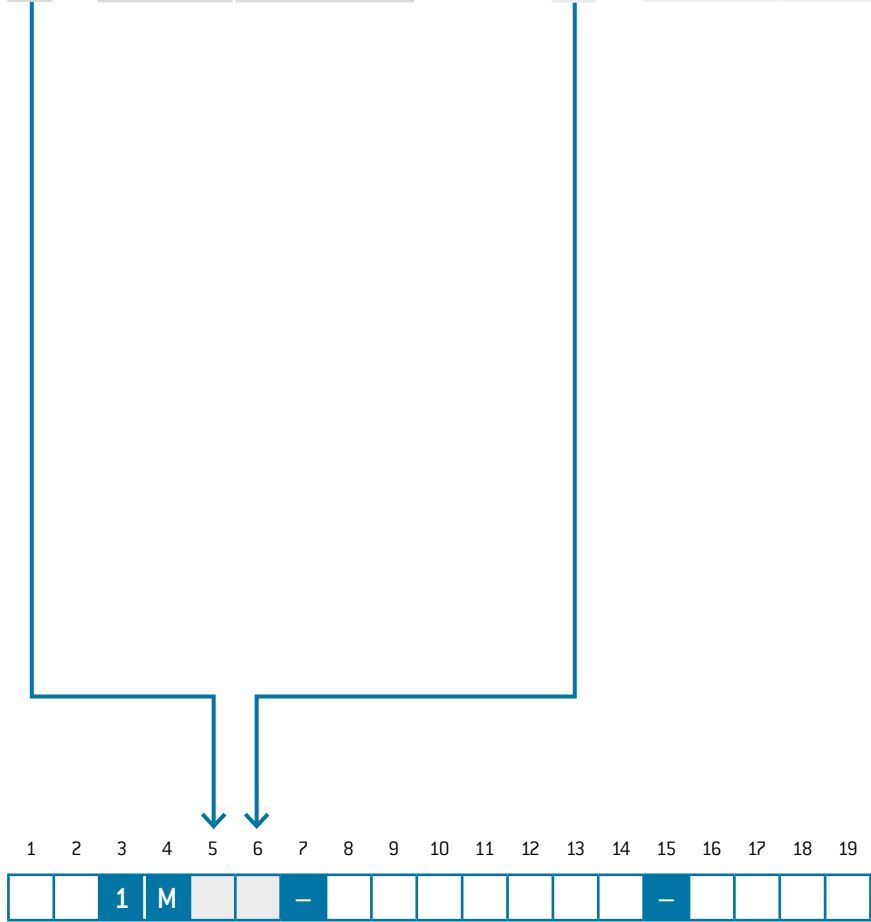
<sup>1</sup> In the case of this style, the connector housing as well as the insulator are made of the housing material PSU.

# CODINGS



	Angle	Receptacle front view		Housing material <sup>1</sup>
O	0°		7	Standard Plastic, Gray (PSU)
A	40°		8	Standard Plastic, Black (PSU)
C	60°		S	Standard Plastic, Black (PEI), autoclavable <sup>2</sup>
E	80°		3	On request Plastic, White (PSU)
H	170°		G	On request Plastic, Gray (PEI), autoclavable <sup>2</sup>
J	205°			

PLASTIC HOUSING SIZE 1

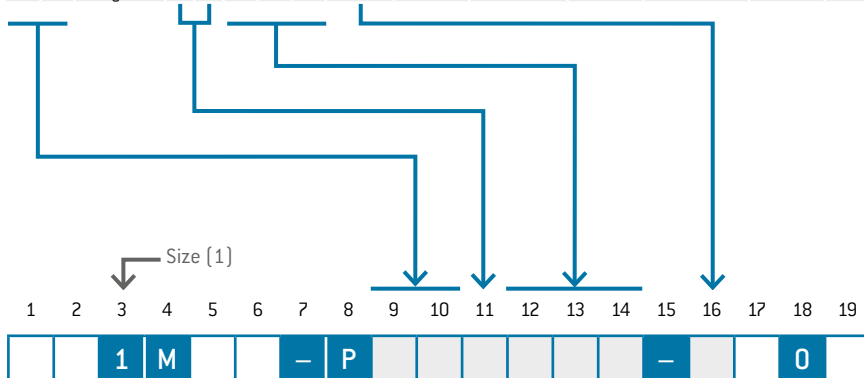


<sup>1</sup> Styles A5 and G2 only available with housing material PSU <sup>2</sup> More detailed information on the topic of “autoclaving” on page 109

# CONTACT INSERTS



Number of contacts	Contact type			Part number key			Contact style	Contact diameter mm	Single contact nominal current <sup>1</sup> A	Nominal current insert A	Clearance and creepage distance contact to contact mm	Test voltage <sup>2</sup> kV DC	Nominal voltage <sup>5</sup> kV DC	Working voltage <sup>7,8</sup> Veff	Termination diameter mm	Termination cross-section		View on termination area			
	Termination	Socket	Pin	P	N	O										AWG	mm <sup>2</sup>	Pin piece	Socket piece		
0	2	Solder	L	M	P	N	O	0	1.3	15	15	1	1.6	0.5	38	1.4	18	1			
		Print straight <sup>4</sup>	Q		P	O	O										20	0.5			
	Angled <sup>4</sup>						–	–													
0	3	Solder	L	M	P	N	9 <sup>6</sup>	0	1.3	15	15	0.9	1.6	0.5	37	1.4	18	1			
		Print straight <sup>4</sup>	Q		P	O	9 <sup>6</sup>										20	0.5			
		Angled <sup>4</sup>															–	–			
0	4	Solder	L	M	J	H	O	0	0.9	10	10	0.9	1.6	0.5	37	1.1	20	0.5			
					J	G	O			7.5	7.5	1.2	1.9	0.6	50	0.85	22	0.38			
		Crimp <sup>3</sup>	N	P	J	H	O			10	10	0.9	1.6	0.5	37	–	20–24	0.5–0.25			
	Print straight <sup>4</sup>	Q		J	O	O	A	0.9	7.5	7.5	1.2	1.9	0.6	50	0.7	–	–				
	Angled <sup>4</sup>															–	–			22–26	0.38–0.15
																0.6	–			–	
0	5	Solder	L	M	J	H	O	0	0.9	10	7.5	0.5	1.35	0.4	25	1.1	20	0.5			
					J	G	O			7.5	5.6	0.8	1.6	0.5	35	0.85	22	0.38			
		Crimp <sup>3</sup>	N	P	J	H	O			10	7.5	0.5	1.35	0.4	25	–	20–24	0.5–0.25			
		Print straight <sup>4</sup>	Q		J	O	O			A	0.9	7.5	5.6	0.8	1.6	0.5	35	0.7			–
Angled <sup>4</sup>						–	–	22–26	0.38–0.15												
0	6	Solder	L	M	F	G	O	0	0.7	7.5	5.6	0.65	1.35	0.4	33	0.85	22	0.38			
					F	D	O			6	4.5	0.85	1.6	0.5	36	0.65	26	0.15			
		Crimp <sup>3</sup>	N	P	F	G	O			7.5	5.6	0.65	1.35	0.4	33	–	22–26	0.38–0.15			
		Print straight <sup>4</sup>	Q		F	O	O			A	0.7	6	4.5	0.85	1.6	0.5	36	0.5			–
Angled <sup>4</sup>						0.6	–	–													
0	7	Solder	L	M	F	G	O	0	0.7	7.5	4.9	0.65	1.35	0.4	33	0.85	22	0.38			
					F	D	O			6	3.9	0.85	1.6	0.5	36	0.65	26	0.15			
		Crimp <sup>3</sup>	N	P	F	G	O			7.5	4.9	0.65	1.35	0.4	33	–	22–26	0.38–0.15			
		Print straight <sup>4</sup>	Q		F	O	O			A	0.7	6	3.9	0.85	1.6	0.5	36	0.5			–
Angled <sup>4</sup>						0.6	–	–													
0	8	Solder	L	M	F	G	O	0	0.7	7.5	4.9	0.4	1.2	0.4	10	0.85	22	0.38			
					F	D	O			6	3.9	0.6	1.6	0.5	32	0.65	26	0.15			
		Crimp <sup>3</sup>	N	P	F	G	O			7.5	4.9	0.4	1.2	0.4	10	–	22–26	0.38–0.15			
		Print straight <sup>4</sup>	Q		F	O	O			A	0.7	6	3.9	0.6	1.6	0.5	32	0.5			–
Angled <sup>4</sup>						0.6	–	–													
0	9	Solder	L	M	C	D	O	0	0.5	6	3.9	0.45	1.2		16	0.65	26	0.15			
					C	C	O			4	2.6	0.65	1.35	0.4		33	0.45	28			0.08
		Print straight <sup>4</sup>	Q		C	O	O			A	0.5	4	2.6	0.65		1.35	0.4	33			0.5
Angled <sup>4</sup>						0.5	–	–													
1	0	Solder	L	M	C	D	O	0	0.5	6	3.3	0.3	0.75	0.25	7.5	0.65	26	0.15			
					C	C	O			4	2.2	0.5	1.35	0.4		25	0.5	–			–
		Print straight <sup>4</sup>	Q		C	O	O			A	0.5	4	2.2	0.5		1.35	0.4	25			0.5
Angled <sup>4</sup>						0.5	–	–													
1	2	Solder	L	M	C	D	9 <sup>6</sup>	0	0.5	6	3.3	0.4			10	0.65	26	0.15			
					C	C	9 <sup>6</sup>			4	2.2	0.5	1.2	0.4		25	0.45	28			0.08
		Print straight <sup>4</sup>	Q		C	O	9 <sup>6</sup>			A	0.5	4	2.2	0.5		1.2	0.4	25			0.5
Angled <sup>4</sup>						0.5	–	–													
1	4	Solder	L	M	C	D	O	0	0.5	6	3	0.3	0.75	0.25	7.5	0.65	26	0.15			
					C	C	O			4	2	0.5	1.2	0.4		25	0.45	28			0.08
		Print straight <sup>4</sup>	Q		C	O	O			A	0.5	4	2	0.5		1.2	0.4	25			0.5
Angled <sup>4</sup>						0.5	–	–													



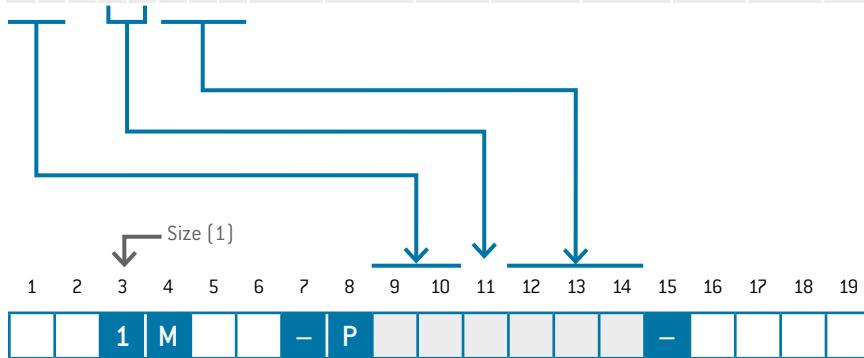
<sup>1</sup> Derating factor, see page 107  
<sup>2</sup> SAE AS 13441:2004 method 3001.1  
<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 96  
<sup>4</sup> PCB layouts (see page 43); print termination only available for receptacle styles 5 and 8  
<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1, further information on page 108  
<sup>6</sup> Not compatible to competition  
<sup>7</sup> IEC 60664-1:2007 (VDE 0110-1:2008) pollution degree 2  
<sup>8</sup> IEC 60664-1:2007 (VDE 0110-1:2008): Over-voltage category III / test voltage: 0.94 kVeff



# SPECIAL-CONTACT INSERT



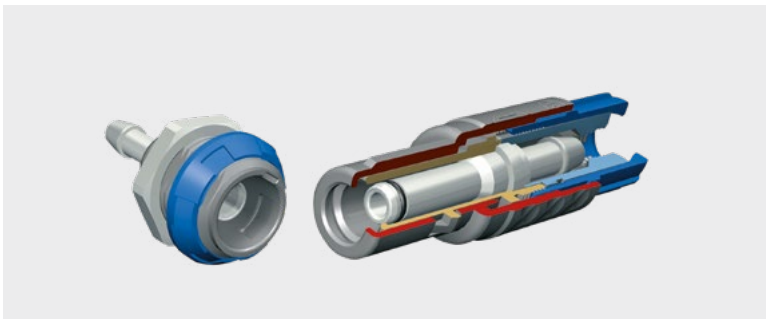
Number of contacts	Termination	Contact type		Part number key			Contact diameter mm	Single contact nominal current A	Nominal current insert A	Clearance and creepage distance contact to contact		Contact-to-contact voltage				Contact diameter mm	Termination cross-section		View on termination area		
		Socket	Pin	J	N	0				mated mm	unmated mm	Working voltage V AC	Nominal voltage kV DC	Test voltage mated kV	Test voltage unmated kV		AWG	mm <sup>2</sup>	Pin piece	Socket piece	
0	3	Solder	L	M	J	N	0	1 × 0.9 (first mate last break) 2 × 0.9	10	9	4.7	2	230 <sup>1,2,3</sup>	1.5 <sup>4</sup>	5 <sup>2,3</sup> 6.75 <sup>4</sup>	3 <sup>2,3</sup> 4.5 <sup>4</sup>	1.4	18	1		



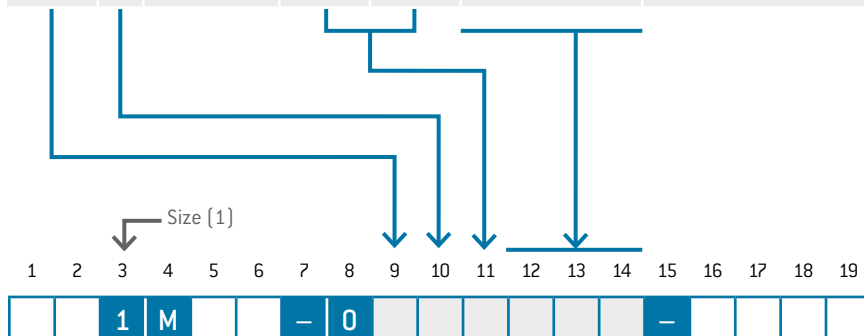
The socket is installed in the plug; the pin is installed in the receptacle.

- <sup>1</sup> In the case of the pin piece, voltage may only be applied in mated condition.
- <sup>2</sup> Acc. IEC 60664-1:2007 (VDE 0110-1:2008): pollution degree 2
- <sup>3</sup> Acc. IEC 60664-1:2007 (VDE 0110-1:2008): Overvoltage category III
- <sup>4</sup> Acc. SAE AS 13441:2004 method 3001.1 (kV DC)

# MEDIA FEED THROUGH



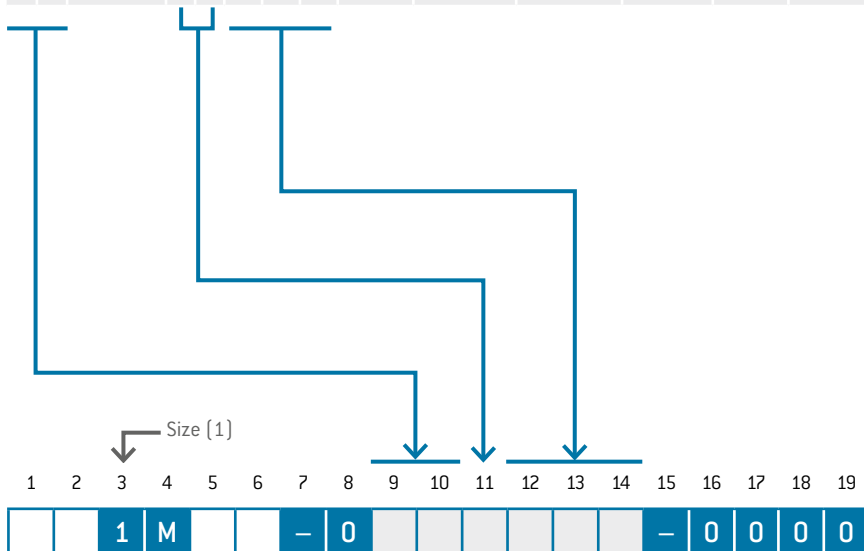
Media feed through	Feed through	Contact type		Part number key			Contact inner diameter mm	Working pressure max. bar	Termination diameter mm	Tube diameter max. mm
		Socket	Pin	1	1	0				
F	1 Not shut off	B	S	1	1	0	2.5	2	4	6
	A Shut off	B	S	On request			1.9	2	4	6



# CONTACT INSERTS STYLES A5 AND G2



Polzahl		Termination	Contact type		Part number key					Contact diameter mm	Single contact nominal current <sup>1</sup> A	Nominal current insert A	Clearance and creepage distance contact to contact mm	Test voltage <sup>2</sup> kV DC	Nominal voltage <sup>3</sup> kV DC	Working voltage <sup>4,5</sup> Veff	Termination diameter mm	Termination cross-section		View on termination area	
			Socket	Pin	A	B	P	H	0									AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	Solder	A	B	P	H	0	1.3	12	12	1.3	1.9	0.6	80	1.1	20	0.5				
0	3	Solder	A	B	P	H	9	1.3	12	12	1.2	1.9	0.6	50	1.1	20	0.5				
0	4	Solder	A	B	J	G	0	0.9	7.5	7.5	1.2	1.9	0.6	50	0.85	22	0.38				
0	5	Solder	A	B	J	G	0	0.9	7.5	5.6	0.8	1.6	0.5	35	0.85	22	0.38				
0	6	Solder	A	B	F	D	0	0.7	6	4.5	0.85	1.6	0.5	36	0.65	26	0.15				
0	7	Solder	A	B	F	D	0	0.7	6	3.9	0.85	1.6	0.5	36	0.65	26	0.15				
0	8	Solder	A	B	F	D	0	0.7	6	3.9	0.6	1.6	0.5	32	0.65	26	0.15				
0	9	Solder	A	B	C	C	0	0.5	4	2.6	0.65	1.35	0.4	33	0.45	28	0.08				
1	0	Solder	A	B	C	C	0	0.5	4	2.2	0.5	1.35	0.4	25	0.45	28	0.08				
1	2	Solder	A	B	C	C	9	0.5	4	2.2	0.5	1.2	0.4	25	0.45	28	0.08				
1	4	Solder	A	B	C	C	0	0.5	4	2	0.5	1.2	0.4	25	0.45	28	0.08				



The sockets are installed in the receptacle style 2; the pins are installed in the plug style 5.

<sup>1</sup> Derating factor, see page 107  
<sup>2</sup> SAE AS 13441:2004 method 3001.1 (kV DC)  
<sup>3</sup> Max. operating voltage at sea level as per SAE AS 13441:2004 method 3001.1 (kV DC), further information on page 108  
<sup>4</sup> IEC 60664-1:2007 (VDE 0110-1:2008): pollution degree 2  
<sup>5</sup> IEC 60664-1:2007 (VDE 0110-1:2008): overvoltage category III / test voltage: 0.94 kVeff

# PCB LAYOUTS

For PCB contacts (Size 1)



	Straight	90° right-angled		Straight	90° right-angled
	Contact borehole: $\varnothing 0.8$ mm	Contact borehole: $\varnothing 0.9$ mm		Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.7$ mm
2 contacts			8 contacts		
3 contacts	Contact borehole: $\varnothing 0.8$ mm 	Contact borehole: $\varnothing 0.9$ mm 	9 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
4 contacts	Contact borehole: $\varnothing 0.8$ mm 	Contact borehole: $\varnothing 0.7$ mm 	10 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
5 contacts	Contact borehole: $\varnothing 0.8$ mm 	Contact borehole: $\varnothing 0.7$ mm 	12 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
6 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 	14 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
7 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 			

All specifications are only valid for socket inserts, pin inserts on request. Further PCB layouts upon request

# RIGHT-ANGLED PCB CONTACTS IN THE RECEPTACLE



A

## RIGHT-ANGLED PCB CONTACT

IP50

For style G5, G8



### Technical Data

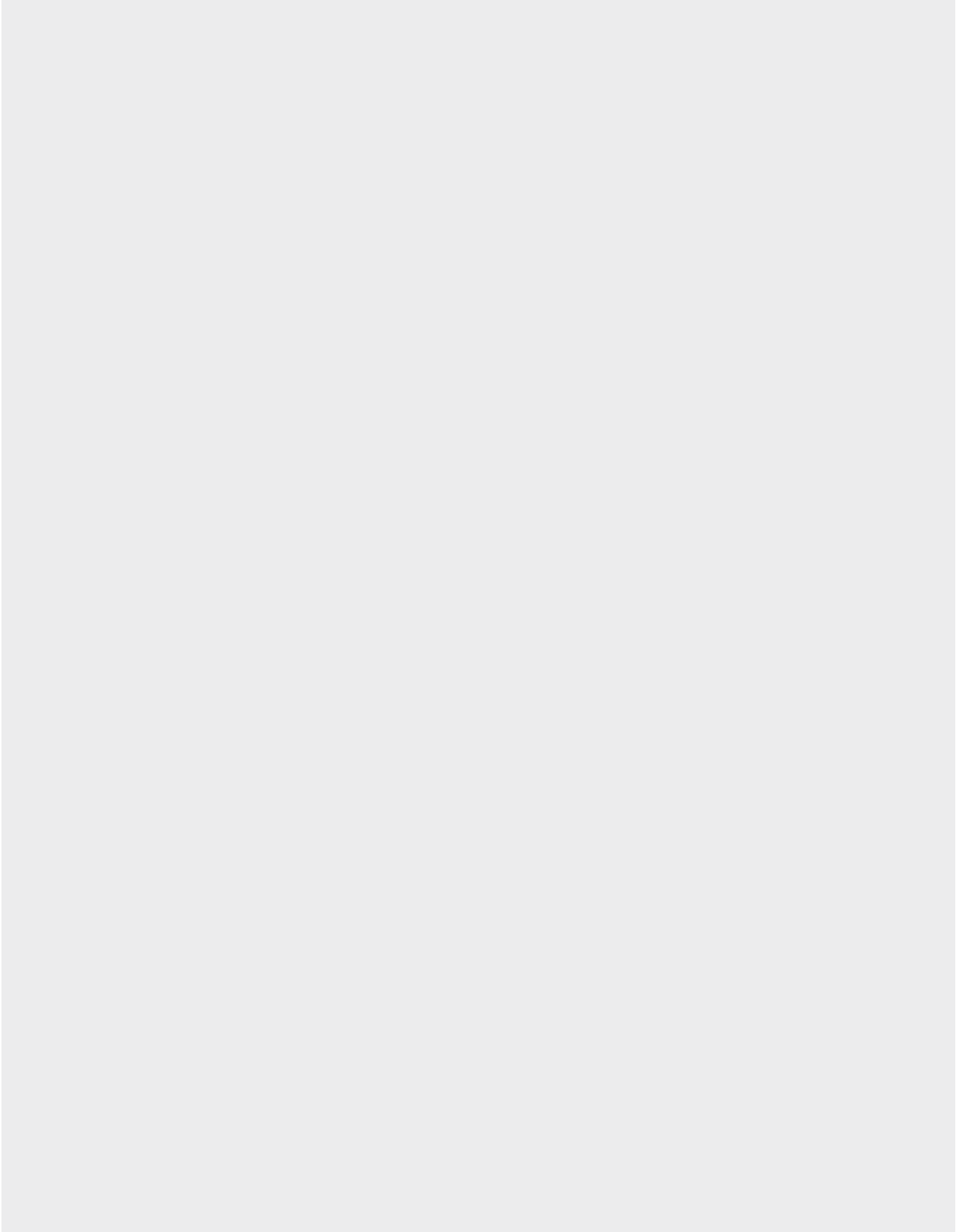
- PCB layouts, see page [43](#)

Contact diameter	Termination diameter
mm	mm
0.5	0.5
0.7	0.6
0.9	0.6
1.3	0.8

Size [1]

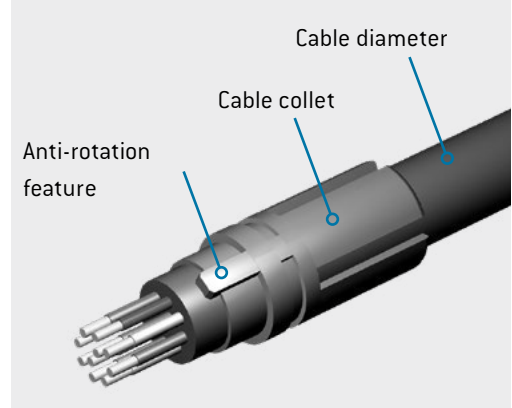
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		1	M			-	P							-	0			

# FOR YOUR NOTES



# CABLE COLLET SYSTEM

For plugs, in-line receptacles as well as receptacles of style 6



Cable diameter mm	Material	Part number
> 2.7–3.9	PSU	KM1.020.121.934.007
> 4.0–5.2		KM1.020.122.934.007
> 5.3–6.5		KM1.020.123.934.007
> 2.7–3.9	PEI	KM1.020.121.933.008
> 4.0–5.2		KM1.020.122.933.008
> 5.3–6.5		KM1.020.123.933.008

**APPLICATION:** for all plugs and in-line receptacles and for receptacle style 6

**USE:** cable collet for strain relief

3	9
5	2
6	5
3	9
5	2
6	5

Size [1]

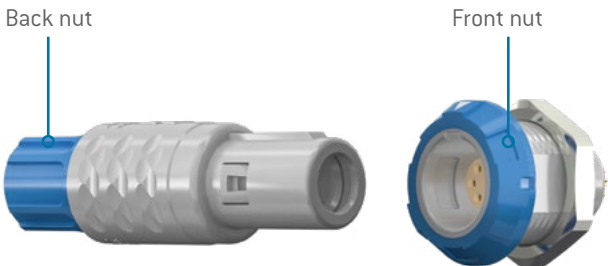
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		1	M			-	P								-			

# COLOR CODINGS



Color coding possibility of the back nut (for plugs, right-angled plugs, in-line receptacles) and the front nut (for receptacles).

Back nuts for cable bend relief have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.



	Color	Similar RAL systems		Material
		Design	Classic	
2	Red	030 40 40	3002	Plastic (PSU)
3	White	000 90 00	9003	
4	Yellow	095 80 70	1016	
5	Green	170 60 50	6032	
6	Blue	250 40 40	5019	
7	Gray	000 55 00	7045	Plastic (PSU/PEI)
8	Black	000 25 00	9004	



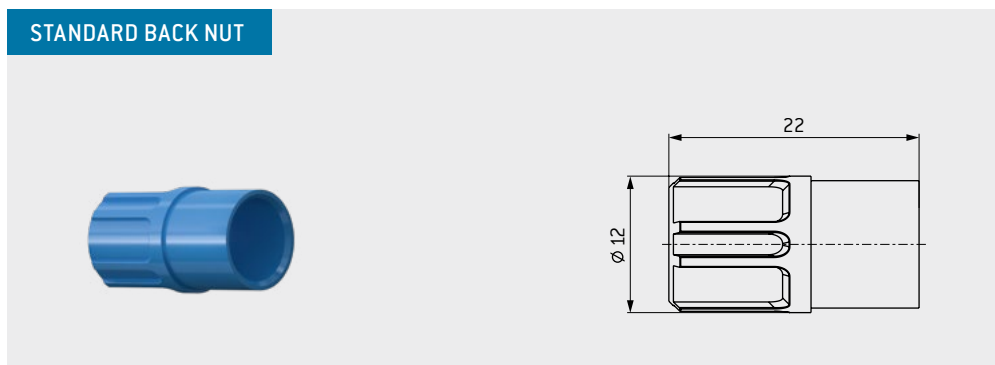
Size [1]

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

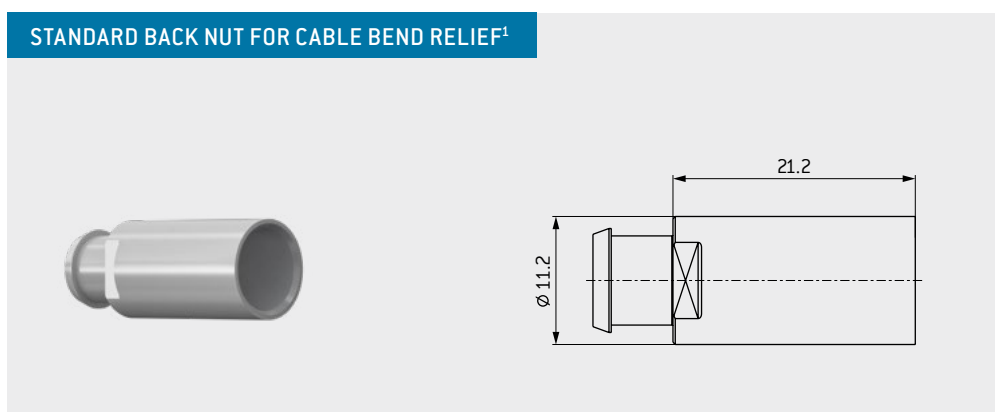
# DEFINITION OF THE BACK NUTS



Applicable to all straight plugs, right-angled plugs, in-line receptacles as well as receptacles of style 6



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.111.934.002	PSU	Red	030 40 40	3002
KM1.020.111.934.003		White	000 90 00	9003
KM1.020.111.934.004		Yellow	095 80 70	1016
KM1.020.111.934.005		Green	170 60 50	6032
KM1.020.111.934.006		Blue	250 40 40	5019
KM1.020.111.934.007		Gray	000 55 00	7045
KM1.020.111.934.008		Black	000 25 00	9004
KM1.020.111.933.008	PEI	Black	000 25 00	9004



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.113.934.007	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.020.113.934.008		Black	000 25 00	9004
KM1.020.113.933.008	PEI	Black	000 25 00	9004

<sup>1</sup> Silicone cable bend reliefs have to be ordered separately [see page 52]. <sup>2</sup> Additional colors on request



# DEFINITION OF THE BACK NUTS



Applicable to all straight plugs, right-angled plugs, in-line receptacles as well as receptacles of style 6

**STANDARD BACK NUT FOR CABLE BEND RELIEF FOR PLUG IP64<sup>1</sup>**

Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.026.113.934.107	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.026.113.934.108		Black	000 25 00	9004
KM1.026.113.933.108	PEI	Black	000 25 00	9004

**STANDARD BACK NUT FOR OVERMOLDING** ON REQUEST

Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.114.934.007	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.020.114.934.008		Black	000 25 00	9004
KM1.020.114.933.008	PEI	Black	000 25 00	9004

<sup>1</sup> Silicone cable bend reliefs have to be ordered separately (see page 52). <sup>2</sup> Additional colors on request

# PROTECTIVE COVER

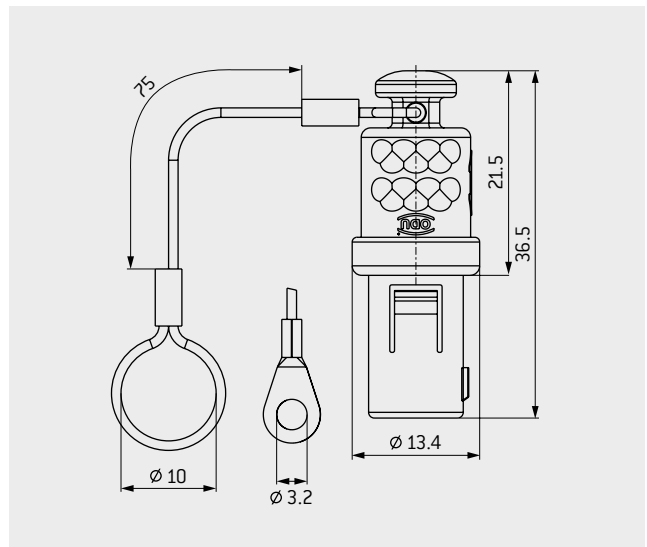
Applicable to receptacles and in-line receptacles with plastic housing



Part number	Material	Color	
		Cover	Polyamide lanyard
KM1.097.0_6.934._02	PSU	Red	White
KM1.097.0_6.934._03	PSU	White	White
KM1.097.0_6.934._04	PSU	Yellow	White
KM1.097.0_6.934._05	PSU	Green	White
KM1.097.0_6.934._06	PSU	Blue	White
KM1.097.0_6.934._07	PSU	Gray	White
KM1.097.0_6.934._08	PSU	Black	Black
KM1.097.0_6.933._08	PEI	Black	Black



Coding		Lanyard material	
0	0°	0	Polyamide lanyard with loop
A	40°	1	Stainless steel lanyard with loop
C	60°	2	Polyamide lanyard with solder lug
E	80°	3	Stainless steel lanyard with solder lug
H	170°		
J	205°		



# PROTECTIVE COVER

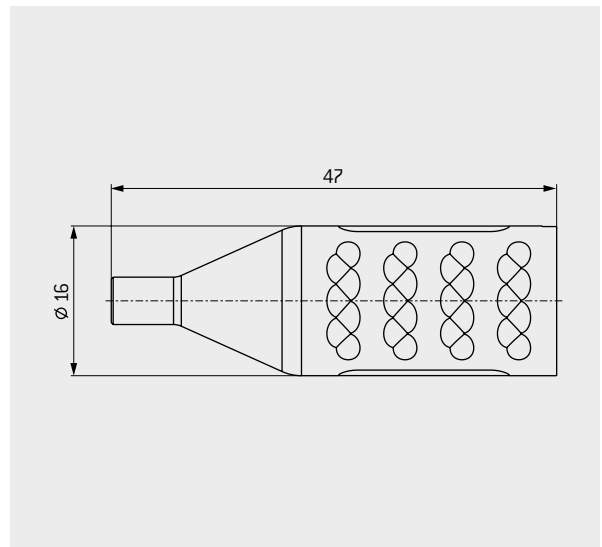
Applicable to the styles G2 and A5



Part number	Material	Color
KM1.013. _934.007	PSU	Gray <sup>1</sup>

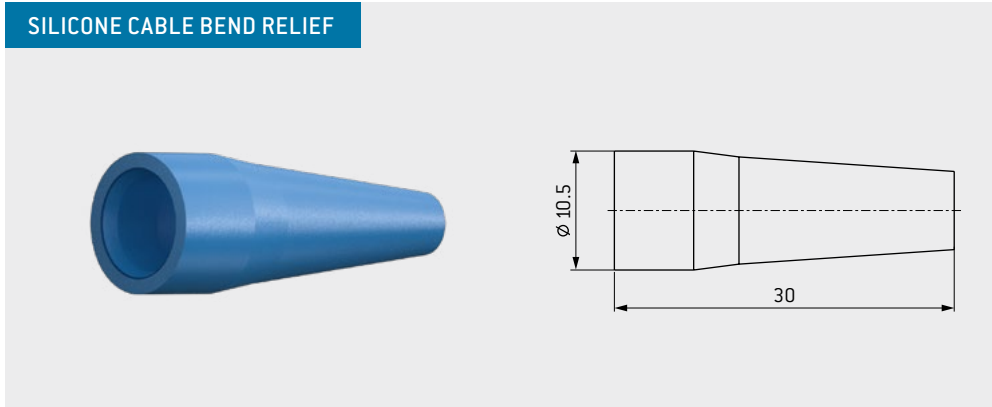


	Ø for cable exit
500	2.5
501	2.7
502	2.8
504	1.7



<sup>1</sup> Additional colors on request

# SILICONE CABLE BEND RELIEF



## TEMPERATURE RANGE

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

## COLORS

Part number	Cable jacket (Ø outside)	
	min.	max.
701.023.____.965.025	2.5	3
701.023.____.965.030	3	3.5
701.023.____.965.035	3.5	4
701.023.____.965.040	4	5
701.023.____.965.050	5	6
701.023.____.965.060	6	6.5

Color code	Color	RAL-Nr. <sup>1</sup> (similar) Classic
202	Red	3020
203	White	9010
204	Yellow	1016
205	Green	6029
206	Blue	5002
207	Gray	7005
208	Black	9005



The silicone cable bend reliefs must always be ordered separately.

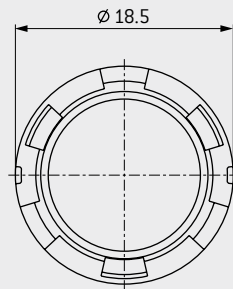
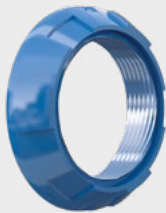
<sup>1</sup> Because of differing basic materials, the colors may differ slightly from RAL numbers.

# NUTS



## FRONT NUT

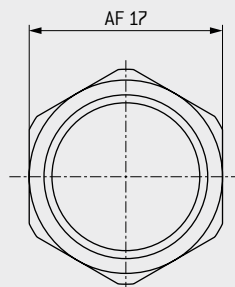
For receptacle style 5, 6 and 8



Part number	Material	Color	Similar RAL system Design
KM1.311.002.934.002	PSU	Red	030 40 40
KM1.311.002.934.003		White	000 90 00
KM1.311.002.934.004		Yellow	095 80 70
KM1.311.002.934.005		Green	170 60 50
KM1.311.002.934.006		Blue	250 40 40
KM1.311.002.934.007		Gray	000 55 00
KM1.311.002.934.008		Black	000 25 00
KM1.311.002.933.008	PEI	Black	000 25 00

## HEX NUT

For receptacle style 1, 4, 5, 6, 9, E and A



Part number	Material
021.310.115.304.000	Nickel-plated brass



ODU MEDI-SNAP®






## ODU MEDI-SNAP<sup>®</sup> WITH PLASTIC HOUSING SIZE 2

Summary .....	<a href="#">56</a>
Styles .....	<a href="#">58</a>
Codings .....	<a href="#">62</a>
Contact inserts and PCB layouts .....	<a href="#">63</a>
Cable collet system .....	<a href="#">68</a>
Accessories .....	<a href="#">69</a>

# SUMMARY ODU MEDI-SNAP<sup>®</sup> PLASTIC HOUSING SIZE 2

The ODU MEDI-SNAP<sup>®</sup> with plastic housing in size 2 is coded by pin and groove. These circular connectors can have a variety of configurations: numerous styles of connectors and receptacles as well as various termination types, contact inserts and color codings.

- Coding over pin and groove
- 7 color codings
- 3 mechanical codings
- 3–26 contacts
- 2 termination types
- Contacts for solder and PCB termination
- A selection of numerous connectors and receptacles
- IP50 and IP64 available in mated condition
- Up to 5,000 mating cycles

<b>STRAIGHT PLUG – PUSH-PULL</b>		<b>2,000</b> mating cycles	<b>P. 58</b>
IP50		S	1
IP50/64		S	4
<b>BREAK-AWAY CONNECTOR</b>		<b>2,000</b> mating cycles	<b>P. 59</b>
IP64		A	5

For assembly instructions, please refer to our website: [www.odu-usa.com/downloads/assembly-instructions](http://www.odu-usa.com/downloads/assembly-instructions)



RECEPTACLE	IEC 60601-1	5,000 mating cycles	P. 60
IP50		2 MOPP <sup>1</sup> 1 MOPP <sup>1</sup>	G 1
IP64		2 MOPP <sup>1</sup> 2 MOPP <sup>1</sup>	G 4
IP50		2 MOPP <sup>1</sup> 1 MOPP <sup>1</sup>	G 5

**MEANS OF OPERATOR PROTECTION (MOOP) / MEANS OF PATIENT PROTECTION (MOPP)**

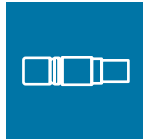
Working voltage: 250 V AC, pollution degree 2

MOOP / MOPP	Clearance distance to the test finger mm	Creepage distances to the test finger mm	Test voltage V AC
1 MOOP	≥ 2	≥ 2.5	1,500
2 MOOP	≥ 4	≥ 5	3,000
1 MOPP	≥ 2.5	≥ 4	1,500
2 MOPP	≥ 5	≥ 8	4,000


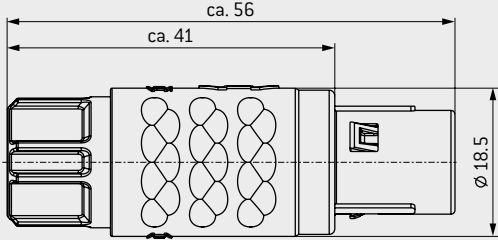

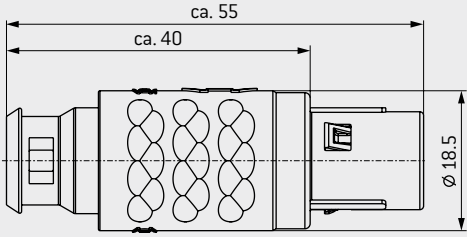
The information refers to all plugs in mated condition on page 56.

<sup>1</sup>Acc. IEC 60601-1:2012 (VDE 0750-1:2013)

# STRAIGHT PLUG

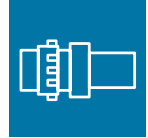


Push-Pull styles

S	1	0	STYLE: 1	IP50
			With standard back nut	
				
<b>TECHNICAL DATA</b>				
<ul style="list-style-type: none"> <li>• Contact configuration from page 63</li> <li>• Explanation of the degrees of protection (see page 102)</li> <li>• Only available in Gray</li> <li>• With color coding</li> </ul>				
S	4	S	STYLE: 4	IP50/64
			With back nut <sup>1</sup> for cable bend relief <sup>2</sup>	
				
<b>TECHNICAL DATA</b>				
<ul style="list-style-type: none"> <li>• Contact configuration from page 63</li> <li>• Explanation of the degrees of protection (see page 102)</li> <li>• IP50 in combination with receptacle style 1 and 5 (in mated condition)</li> <li>• IP64 in combination with receptacle style 4 (in mated condition)</li> <li>• Only available in Gray</li> <li>• Alternative style S2 with IP50</li> </ul>				
			Size [2]	
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	
2	M	7	-	P

<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 72).

# BREAK-AWAY CONNECTOR

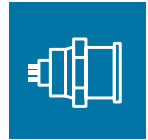


## Break-Away styles

A	5	0	<b>STYLE: 5</b>		<b>IP64</b>													
			Connector suitable for overmolding															
<p><b>TECHNICAL DATA</b></p> <ul style="list-style-type: none"> <li>Contact configuration from page 63</li> <li>Explanation of the degrees of protection (see page 102)</li> <li>The complete housing with molded insulators made of plastic<sup>1</sup></li> <li>Break-Away connectors available in PSU</li> <li>IP64 with overmolding in combination receptacle style 4</li> <li>Available with solder contacts</li> <li>Available with 5, 16 or 26 contacts configuration, other configurations upon request</li> <li>Coding available in C = 60°, other codings on request</li> </ul> <p>All ODU MEDI-SNAP® Break-Away connectors can be purchased with overmolding and cable assembly.</p>																		
1	2	3	4	5	6	7	8 <sup>1</sup>	9	10	11	12	13	14	15	16	17	18	19
A	5	2	M	C	7	-	0							-	0	0	0	0

<sup>1</sup> In the case of this style, the connector housing as well as the insulator are made of the housing material PSU.

# RECEPTACLE

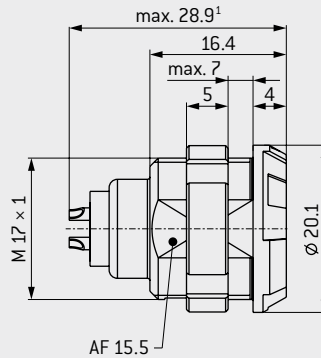


G 1

## STYLE: 1

For front panel installation

IP50



## PANEL CUT-OUT



AF : 15.6 mm  
 $\varnothing$  : 17.1 mm

### TECHNICAL DATA

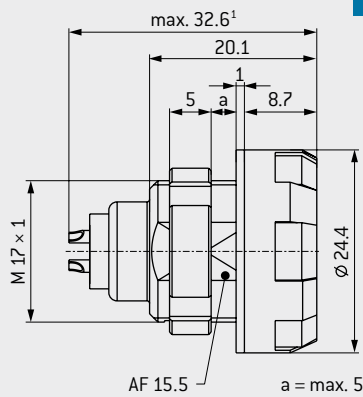
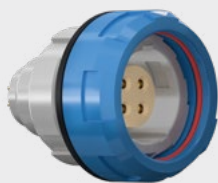
- Contact inserts and PCB layouts (see page 63)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- Front flange in color of housing
- Color coding on request

G 4

## STYLE: 4

For front panel installation

IP64



## PANEL CUT-OUT



AF : 15.6 mm  
 $\varnothing$  : 17.1 mm

### TECHNICAL DATA

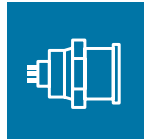
- Contact inserts and PCB layouts (see page 63)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- IP64 in combination with plug style 4 as well as Break-Away connector style 5 in mated condition
- With color coding

Size [2]

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

<sup>1</sup> Depending on the insert

# RECEPTACLE

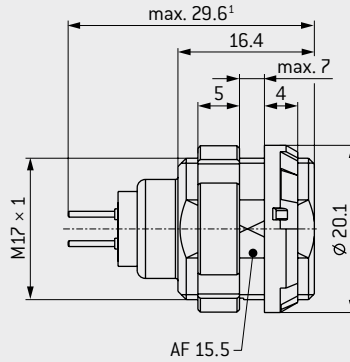


G 5

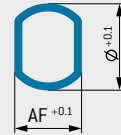
**STYLE: 5**

For front or rear panel installation

**IP50**



**PANEL CUT-OUT**



AF : 15.6 mm  
Ø : 17.1 mm

**TECHNICAL DATA**

- Contact inserts and PCB layouts (see page 63)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding
- Right-angled PCB contact possible (see page 66)

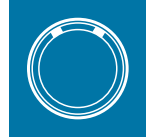
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
		2	M			7	-	P							-		0		1

Size [2]

<sup>1</sup> Depending on the insert

# CODINGS

# HOUSING MATERIAL

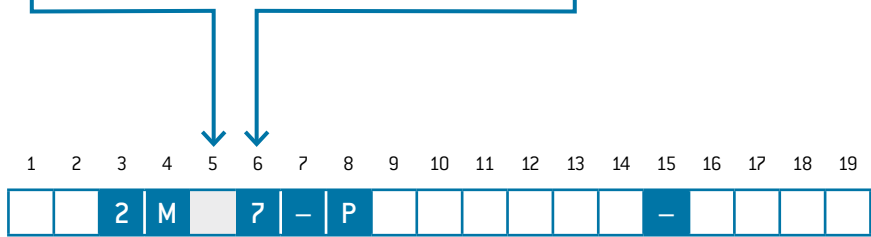


	Angle	Receptacle front view
C	60°	
E	80°	
F	90°	

Further codings on request

	Housing material
7	Standard Plastic, Gray (PSU)

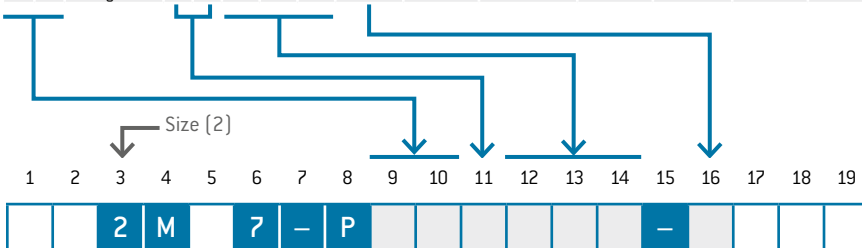
Further housing materials on request



# CONTACT INSERTS



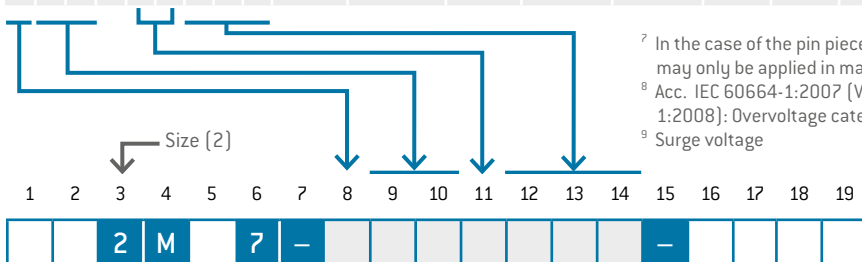
Number of contacts	Contact type			Part number key			Contact style	Contact diameter mm	Single contact nominal current <sup>1</sup> A	Nominal current insert A	Clearance and creepage distance contact to contact mm	Test voltage <sup>2</sup> kV DC	Nominal voltage <sup>3</sup> kV DC	Working voltage <sup>4,5</sup> V <sub>eff</sub>	Termination diameter mm	Termination cross-section		View on termination area	
	Termination	Socket	Pin	P	N	O										AWG	mm <sup>2</sup>	Pin piece	Socket piece
0 4	Solder	L	M	P	N	O	0	1.3	15	15	1.6	3	0.9	160	1.4	18	1		
				P	H	O													
	Print straight <sup>6</sup> Angled <sup>6</sup>	Q			P	O	O	A	12	12	2	200	0.7	–	–				
1 2	Solder	L	M	F	G	O	0	0.7	7.5	3.75	0.8	1.6	0.5	37	0.85	22	0.38		
				F	D	O													
	Print straight <sup>6</sup> Angled <sup>6</sup>	Q			F	O	O	A	6	3	1	50	0.65	26	0.15				
1 6	Solder	L	M	F	G	O	0	0.7	7.5	3.75	0.5	1.6	0.5	25	0.85	22	0.38		
				F	D	O													
	Print straight <sup>6</sup> Angled <sup>6</sup>	Q			F	O	O	A	6	3	0.7	34	0.65	26	0.15				
1 9	Solder	L	M	F	G	O	0	0.7	7.5	3.4	0.5	1.35	0.4	25	0.85	22	0.38		
				F	D	O													
	Print straight <sup>6</sup> Angled <sup>6</sup>	Q			F	O	O	A	6	2.7	0.7	34	0.65	26	0.15				
2 6	Solder	L	M	C	C	O	0	0.5	4	1.6	0.5	1.35	0.4	25	0.45	28	0.08		
				C	O	O													
	Print straight <sup>6</sup> Angled <sup>6</sup>	Q			C	O	O	A	–	–	–	–	–	–	–	–			



<sup>1</sup> Derating factor, see page 107  
<sup>2</sup> SAE AS 13441:2004 method 3001.1 (kV DC)  
<sup>3</sup> Max. operating voltage at sea level as per SAE AS 13441:2004 method 3001.1 (kV DC), further information on page 108  
<sup>4</sup> IEC 60664-1:2007 (VDE 0110-1:2008): pollution degree 2  
<sup>5</sup> IEC 60664-1:2007 (VDE 0110-1:2008): overvoltage category III / test voltage: 0.94 kVeff  
<sup>6</sup> PCB layouts, see page 65; Termination diameter print straight/print angled [receptacle style 5]

# SPECIAL-CONTACT INSERT

Insulator material <sup>14</sup>	Number of contacts	Contact type			Part number key	Contact diameter mm	Single contact nominal current A	Nominal current insert A	Clearance and creepage distance contact to contact		Contact-to-contact voltage				Termination diameter mm	Termination cross-section		View on termination area				
		Termination	Socket	Pin					mated mm	unmated mm	Nominal voltage V AC <sup>7,8</sup>	Nominal voltage V DC <sup>7,8</sup>	Test voltage mated kV <sup>9</sup>	Test voltage unmated kV <sup>9</sup>		AWG	mm <sup>2</sup>	Pin piece	Socket piece			
P	0	3 <sup>10</sup>	Solder	L	M	T	S	O	1 × 2 (first mate last break) 2 × 2	22	22	4.7	2	230 <sup>11</sup>	320	5 <sup>8,11</sup>	3 <sup>8,11</sup>	2.4	12	2.5		
T	0	5	Solder	L	M	P	Q	L	1 × 1.3 (first mate last break)	16	12	9.9	3.2	600 <sup>12,13</sup>	840	7 <sup>4,8,12,13</sup>	5 <sup>8,12,13</sup>	1.9	14	1.5		
									2 × 1.3 (lagging)													
									2 × 1.3													

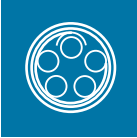


<sup>7</sup> In the case of the pin piece, voltage may only be applied in mated condition.  
<sup>8</sup> Acc. IEC 60664-1:2007 (VDE 0110-1:2008): Overvoltage category III.  
<sup>9</sup> Surge voltage  
<sup>10</sup> The socket is installed in the plug; the pin is installed in the receptacle.  
<sup>11</sup> IEC 60664-1:2007 (VDE 0110-1:2008): pollution degree 2.  
<sup>12</sup> Voltage may only be applied to fully assembled and potted connectors in mated condition.  
<sup>13</sup> Acc. IEC 60664-1:2007 (VDE 0110-1:2008): pollution degree 3.  
<sup>14</sup> P: PEEK / T: PBT





# PCB LAYOUTS



For PCB contacts (Size 2)

	Straight	90° right-angled
4 contacts	<p>Contact borehole: <math>\varnothing 0.8</math> mm</p>	<p>Contact borehole: <math>\varnothing 0.9</math> mm</p>
12 contacts	<p>Contact borehole: <math>\varnothing 0.8</math> mm</p>	<p>Contact borehole: <math>\varnothing 0.7</math> mm</p>
16 contacts	<p>Contact borehole: <math>\varnothing 0.8</math> mm</p>	
19 contacts	<p>Contact borehole: <math>\varnothing 0.8</math> mm</p>	
26 contacts	<p>Contact borehole: <math>\varnothing 0.6</math> mm</p>	<p>Contact borehole: <math>\varnothing 0.6</math> mm</p>

All specifications are only valid for socket inserts, pin inserts on request.  
Further PCB layouts upon request

# RIGHT-ANGLED PCB CONTACTS IN THE RECEPTACLE



A

## RIGHT-ANGLED PCB CONTACT

IP50

For style G5



### TECHNICAL DATA

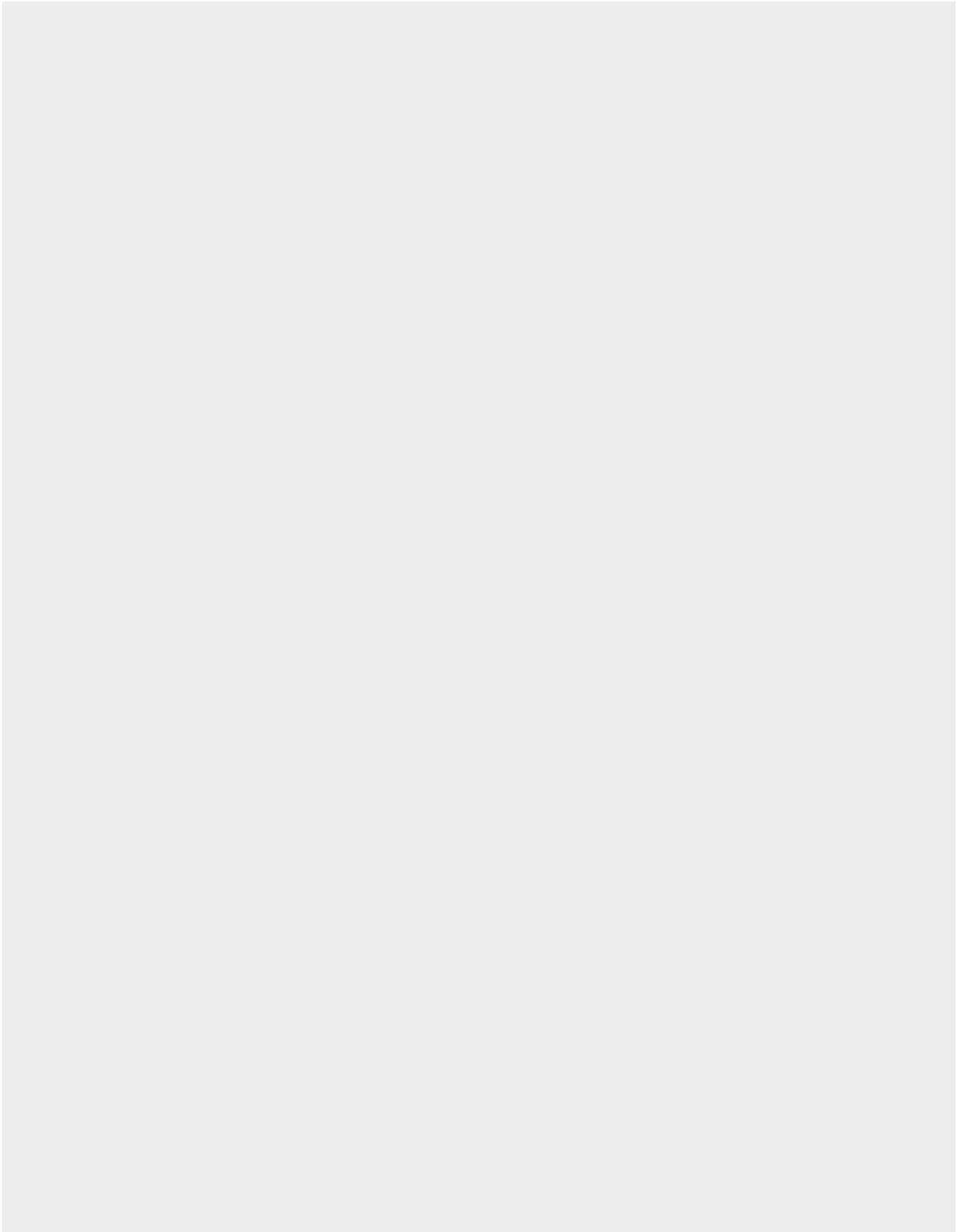
- PCB layouts, see page [65](#)

Contact diameter	Termination diameter
mm	mm
0.5	0.5
0.7	0.6
1.3	0.8

Size [2]

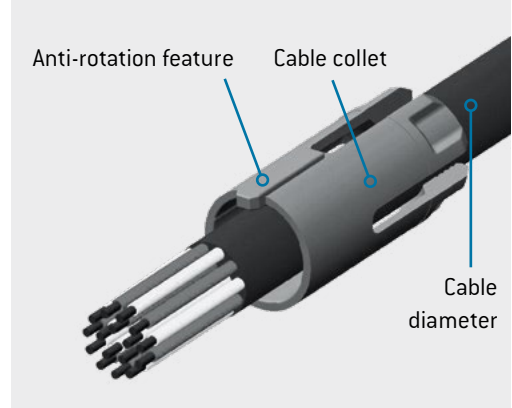
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		2	M		7	-	P							-		0		1

# FOR YOUR NOTES



# CABLE COLLET SYSTEM

For plug parts

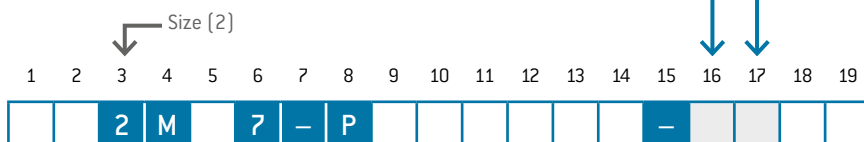


Cable diameter mm	Material	Part number
> 3.2–5.4	PSU	KM2.020.121.934.007
> 5.4–7.4		KM2.020.122.934.007
> 7.4–9.2		KM2.020.123.934.007

**APPLICATION:** for all plug parts

**USE:** cable collet for strain relief

5	4
7	4
9	2



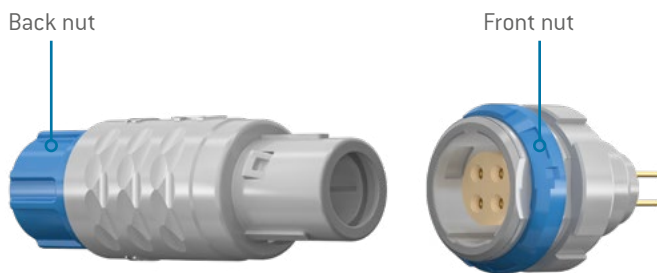
# COLOR CODINGS



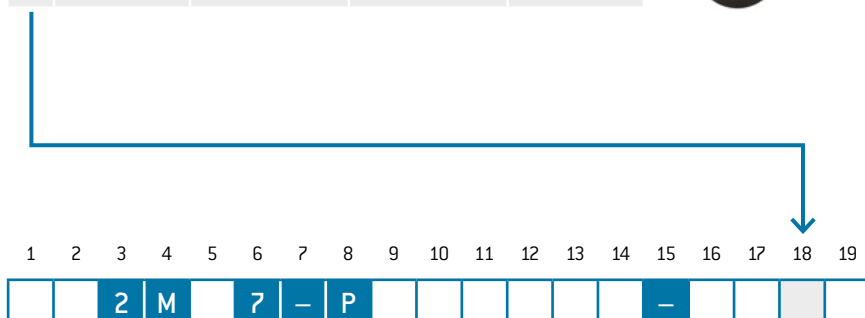
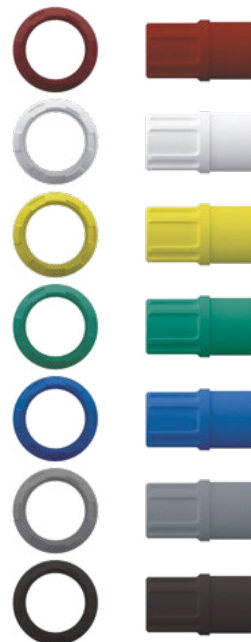
Color coding of the front nut only for receptacles G4 and G5

Color coding of the back nut only for straight plug S1

The color coding for plug style 4 is based on the cable bend relief.



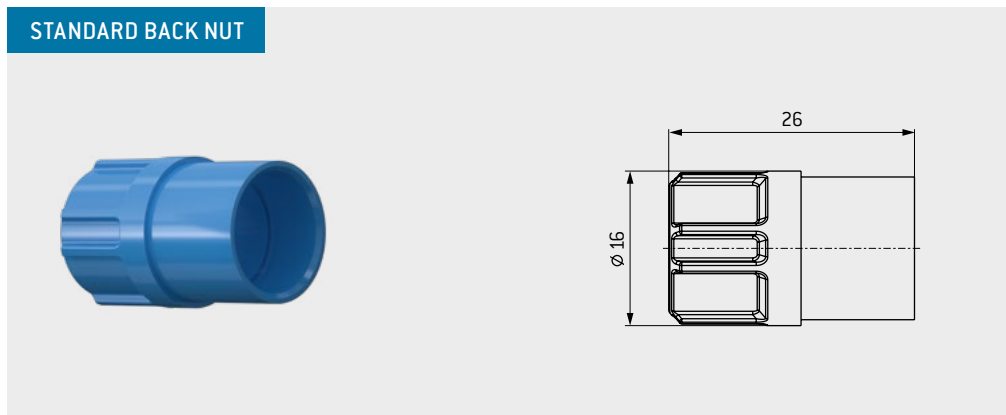
	Color	Similar RAL systems		Material
		Design	Classic	
2	Red	030 40 40	3002	Plastic (PSU)
3	White	000 90 00	9003	
4	Yellow	095 80 70	1016	
5	Green	170 60 50	6032	
6	Blue	250 40 40	5019	
7	Gray	000 55 00	7045	
8	Black	000 25 00	9004	



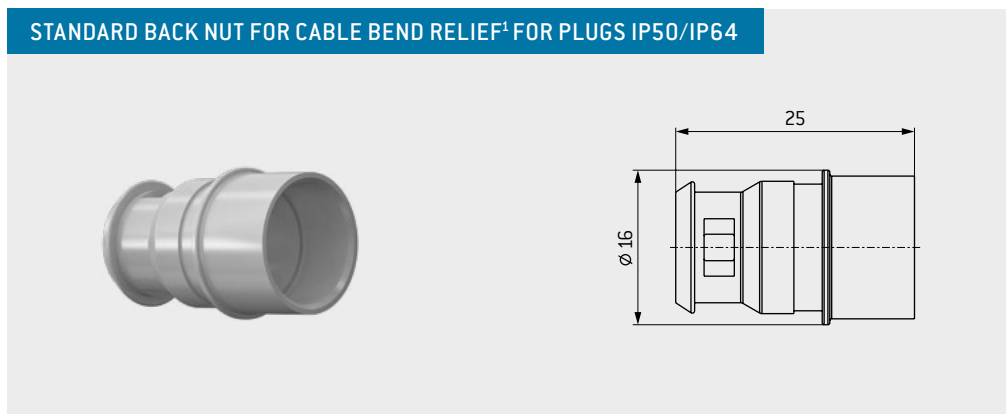
# DEFINITION OF THE BACK NUTS



Applicable to all straight plug parts



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM2.020.111.934.002	PSU	Red	030 40 40	3002
KM2.020.111.934.003		White	000 90 00	9003
KM2.020.111.934.004		Yellow	095 80 70	1016
KM2.020.111.934.005		Green	170 60 50	6032
KM2.020.111.934.006		Blue	250 40 40	5019
KM2.020.111.934.007		Gray	000 55 00	7045
KM2.020.111.934.008		Black	000 25 00	9004

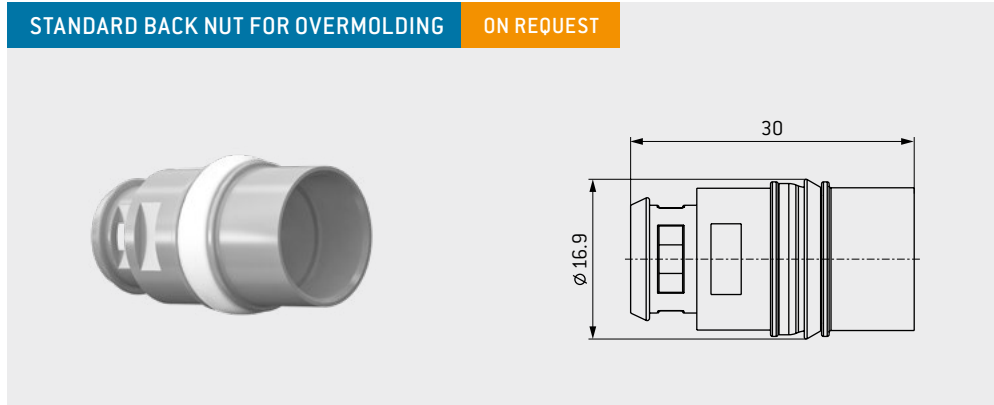


Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM2.026.112.934.007	PSU	Gray	000 55 00	7045

<sup>1</sup> Cable bend reliefs have to be ordered separately [see page 72].

# DEFINITION OF THE BACK NUTS

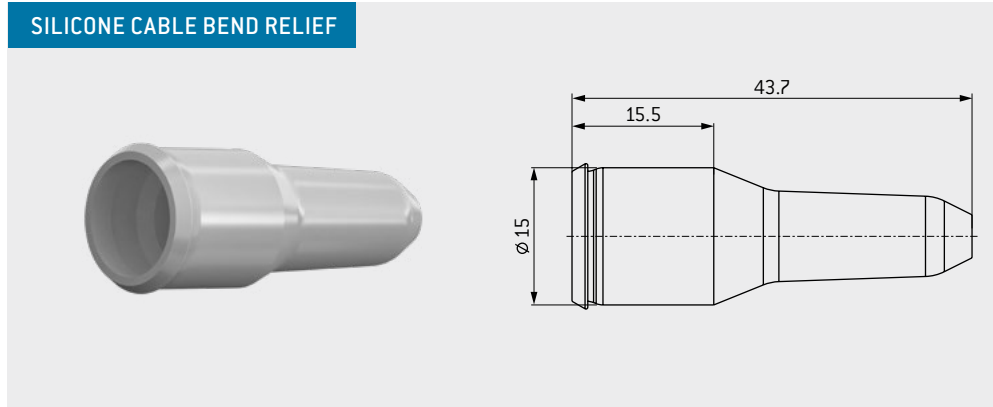
Applicable to all straight plug parts



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM2.026.113.934.007 <sup>1</sup>	PSU	Gray	000 55 00	7045
KM2.026.113.934.107 <sup>2</sup>	PSU	Gray	000 55 00	7045

<sup>1</sup> IP50 with connector style 2 <sup>2</sup> IP64 with connector style 4

# SILICONE CABLE BEND RELIEF



## TEMPERATURE RANGE

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

## COLORS

Part number	Cable jacket (Ø outside)	
	min.	max.
KM2.023.____.965.032	3.2	4.7
KM2.023.____.965.047	4.7	6.2
KM2.023.____.965.062	6.2	7.7
KM2.023.____.965.077	7.7	9.2

Color code	Color	RAL no. <sup>1</sup> (similar) Classic
207	Gray	7000
208	Black	9005



The silicone cable bend reliefs must always be ordered separately.

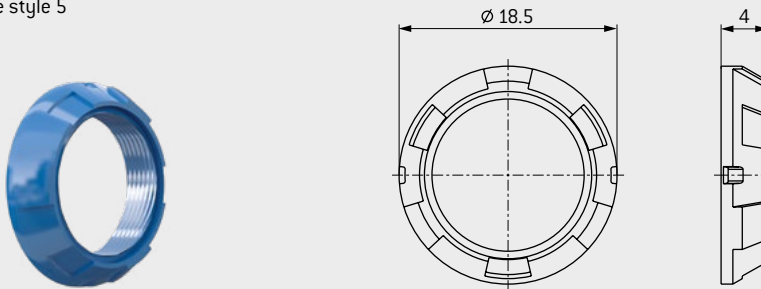
<sup>1</sup> Because of differing basic materials, the colors may differ slightly from RAL numbers.



# NUTS

## FRONT NUT

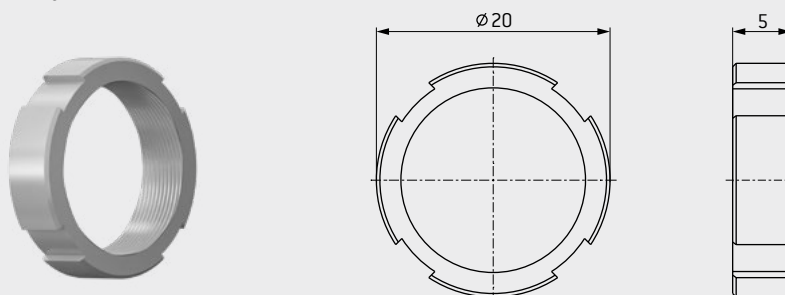
For receptacle style 5



Part number	Material	Color	Similar RAL system Design
KM2.311.002.934.002	PSU	Red	030 40 40
KM2.311.002.934.003		White	000 90 00
KM2.311.002.934.004		Yellow	095 80 70
KM2.311.002.934.005		Green	170 60 50
KM2.311.002.934.006		Blue	250 40 40
KM2.311.002.934.007		Gray	000 55 00
KM2.311.002.934.008		Black	000 25 00

## MOUNTING NUT

For receptacle style 1, 4 and 5



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM2.311.001.933.007	PEI	Gray	000 55 00	7045



ODU MEDI-SNAP®



## ODU MEDI-SNAP® WITH METAL HOUSING

Summary .....	<u>76</u>
Styles .....	<u>78</u>
Codings .....	<u>82</u>
Contact inserts and PCB layouts .....	<u>83</u>
Cable collet system .....	<u>88</u>
Accessories .....	<u>89</u>

# SUMMARY ODU MEDI-SNAP® METAL HOUSING

The ODU MEDI-SNAP® with metal housing in size 1 is coded by pin and groove. These circular connectors can have a variety of configurations: numerous styles of connectors, receptacles and in-line receptacles as well as various termination types, contact inserts and color codings.

- Compatible with plastic finish
- Robust housing finish
- Coding over pin and groove
- 7 color codings
- 3 mechanical codings
- 2–14 contacts
- 3 termination types
- Contacts for solder, crimp and PCB termination
- A selection of numerous connectors as well as receptacles and in-line receptacles
- IP50 and IP64 available in mated condition
- Up to 5,000 mating cycles

**NOTE**

The ODU MEDI-SNAP® Break-Away connector A5 in size 1 is not generally mateable on metal receptacles.

STRAIGHT PLUG – PUSH-PULL		2,000 mating cycles	P. 78
IP50		S	1
		S	2
IP64		S	4

For assembly instructions, please refer to our website: [www.odu-usa.com/downloads/assembly-instructions](http://www.odu-usa.com/downloads/assembly-instructions)

RECEPTACLE – PUSH-PULL		5,000 mating cycles	P. 79
IP50		G	1
		G	5
IP64/IP68 <sup>1</sup>		G	A
IP50		G	K

IN-LINE RECEPTACLE		5,000 mating cycles	P. 81
IP50		K	5
		K	6

<sup>1</sup>IP68 in reference to the tightness of the end device in unmated condition

# STRAIGHT PLUG



## Push-Pull styles

S	1	0	<b>STYLE: 1</b>	IP50
With standard back nut				

S	2	S	<b>STYLE: 2</b>	IP50
With back nut <sup>1</sup> for cable bend relief <sup>2</sup>				

S	4	S	<b>STYLE: 4</b>	IP64
With back nut <sup>1</sup> for cable bend relief <sup>2</sup>				

**TECHNICAL DATA**

- Contact configuration from page 83
- Explanation of the degrees of protection (see page 102)
- Color coding for S1 possible
- IP64 in combination with receptacle style 4 (in mated condition).

Size [1]

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

<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 92).

# RECEPTACLE

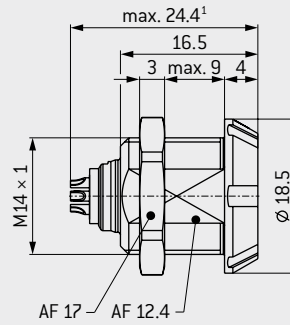
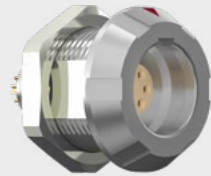


G 1

## STYLE: 1

IP50

For front panel installation



## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14 mm

### TECHNICAL DATA

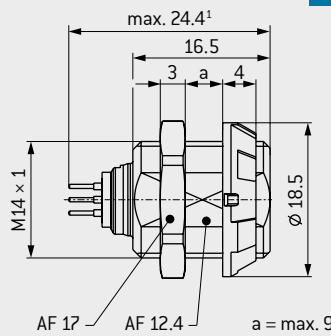
- Contact inserts and PCB layouts (see page 83)
- Explanation of the degrees of protection (see page 102)
- Anti-rotation feature
- IP50 in reference to the tightness of the end device

G 5

## STYLE: 5

IP50

Receptacle with continuous thread, can be installed from front or rear; extension in front of panel is adjustable



## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14 mm

### TECHNICAL DATA

- Contact inserts and PCB layouts (see page 83)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device.
- Anti-rotation feature
- With color coding
- Right-angled PCB contact possible (see page 86)

Size [1]

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

<sup>1</sup> Depending on the insert

# RECEPTACLE



G A

**STYLE: A** **IP64/68**

For front panel installation

**PANEL CUT-OUT**

AF : 12.5 mm  
Ø : 14 mm

**TECHNICAL DATA**

- Contact inserts and PCB layouts (see page 83)
- Explanation of the degrees of protection (see page 102)
- IP64 in combination with connector style 4 in mated condition (page 78)
- IP68 in reference to the tightness of the end device in unmated condition
- Anti-rotation feature

G K

**STYLE: K** **IP50**

For rear panel installation

**PANEL CUT-OUT**

AF : 12.5 mm  
Ø : 14 mm

**TECHNICAL DATA**

- Contact inserts and PCB layouts (see page 83)
- Explanation of the degrees of protection (see page 102)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding
- Right-angled PCB contact possible (see page 86)

Size [1]

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

1 M C - P - 0 0

¹ Depending on the insert

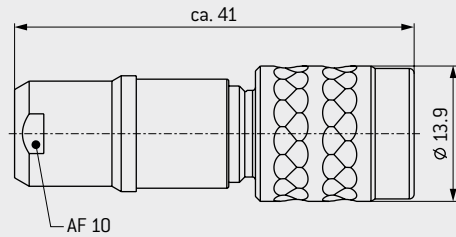


# IN-LINE RECEPTACLE



**K 5 0** **STYLE: 5** **ON REQUEST** **IP50**

With standard back nut

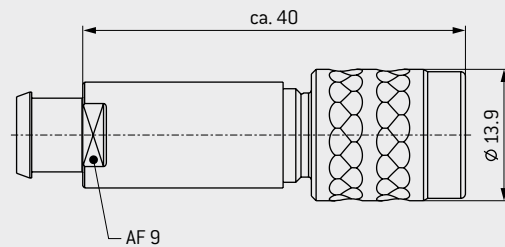
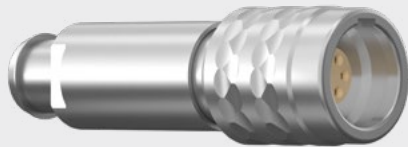


**TECHNICAL DATA**

- Contact configuration from page 83
- Explanation of the degrees of protection [see page 102]
- Color coding via back nut possible [see page 89]

**K 6 S** **STYLE: 6** **ON REQUEST** **IP50**

With back nut for cable bend relief<sup>1</sup>



**TECHNICAL DATA**

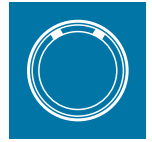
- Contact configuration from page 83
- Explanation of the degrees of protection [see page 102]

Size [1]

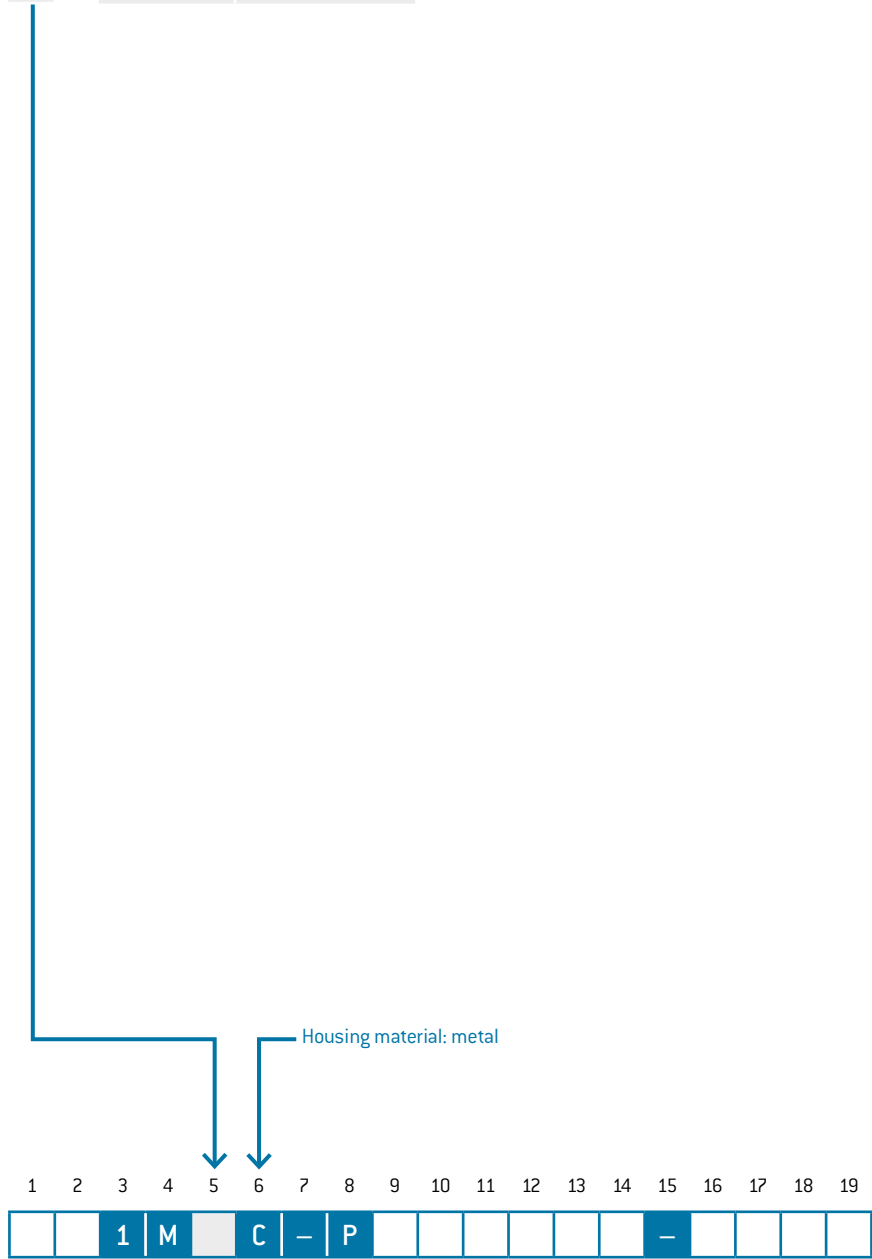
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		1	M		C	-	P							-				

<sup>1</sup> Cable bend reliefs have to be ordered separately [see page 92].

# CODINGS



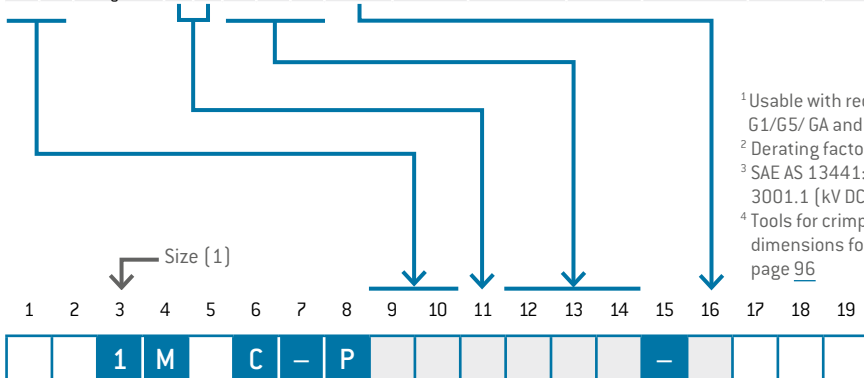
	Angle	Receptacle front view
0	0°	
A	40°	
C	60°	



# CONTACT INSERTS



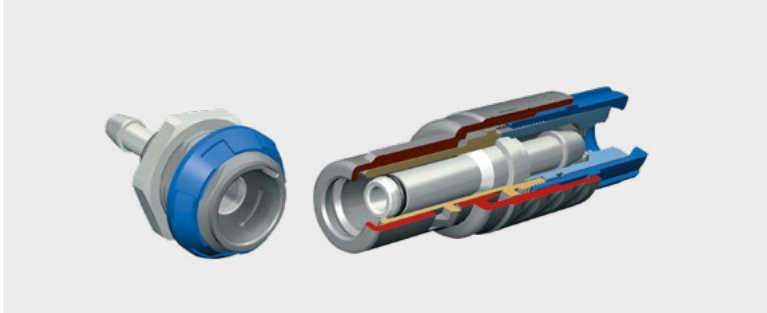
Number of contacts	Contact type		Part number key			Contact style <sup>1</sup>	Contact diameter mm	Single contact nominal current <sup>2</sup> A	Nominal current insert A	Clearance and creepage distance contact to contact mm	Test voltage <sup>3</sup> kV DC	Nominal voltage <sup>5</sup> kV DC	Working voltage <sup>7,8</sup> Veff	Termination cross-section		View on termination area				
	Termination	Socket	Pin	P	N									O	mm	mm <sup>2</sup>	AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	Solder	L	M	P	N	O	1.3	15	15	1	1.6	0.5	38	1.4	18	1			
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		P	O	O		A	12	12	1.3	1.9	0.6	80	1.1 0.7 0.8	20 – –			0.5 – –
0	3	Solder	L	M	P	N	9 <sup>9</sup>	1.3	15	15	0.9	1.6	0.5	37	1.4	18	1			
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		P	O	9 <sup>9</sup>		A	12	12	1.2	1.9	0.6	50	1.1 0.7 0.8	20 – –			0.5 – –
0	4	Solder	L	M	J	H	O	0.9	10	10	0.9	1.6	0.5	37	1.1	20	0.5			
					J	G	O			7.5	7.5	1.2	1.9	0.6	50	0.85	22			0.38
		Crimp <sup>4</sup>	N	P	J	H	O			10	10	0.9	1.6	0.5	37	–	20–24			0.5–0.25
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		J	O	O		A	7.5	7.5	1.2	1.9	0.6	50	– 0.7 0.6	– – –			– – –
0	5	Solder	L	M	J	H	O	0.9	10	7.5	0.5	1.35	0.4	25	1.1	20	0.5			
					J	G	O			7.5	5.6	0.8	1.6	0.5	35	0.85	22			0.38
		Crimp <sup>4</sup>	N	P	J	H	O			10	7.5	0.5	1.35	0.4	25	–	20–24			0.5–0.25
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		J	O	O		A	7.5	5.6	0.8	1.6	0.5	35	– 0.7 0.6	– – –			– – –
0	6	Solder	L	M	F	G	O	0.7	7.5	5.6	0.65	1.35	0.4	33	0.85	22	0.38			
					F	D	O			6	4.5	0.85	1.6	0.5	36	0.65	26			0.15
		Crimp <sup>4</sup>	N	P	F	G	O			7.5	5.6	0.65	1.35	0.4	33	–	22–26			0.38–0.15
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		F	O	O		A	6	4.5	0.85	1.6	0.5	36	– 0.5 0.6	– – –			– – –
0	7	Solder	L	M	F	G	O	0.7	7.5	4.9	0.65	1.35	0.4	33	0.85	22	0.38			
					F	D	O			6	3.9	0.85	1.6	0.5	36	0.65	26			0.15
		Crimp <sup>4</sup>	N	P	F	G	O			7.5	4.9	0.65	1.35	0.4	33	–	22–26			0.38–0.15
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		F	O	O		A	6	3.9	0.85	1.6	0.5	36	– 0.5 0.6	– – –			– – –
0	8	Solder	L	M	F	G	O	0.7	7.5	4.9	0.4	1.2	0.4	10	0.85	22	0.38			
					F	D	O			6	3.9	0.6	1.6	0.5	32	0.65	26			0.15
		Crimp <sup>4</sup>	N	P	F	G	O			7.5	4.9	0.4	1.2	0.4	10	–	22–26			0.38–0.15
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		F	O	O		A	6	3.9	0.6	1.6	0.5	32	– 0.5 0.6	– – –			– – –
0	9	Solder	L	M	C	D	O	0.5	6	3.9	0.45	1.2		16	0.65	26	0.15			
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		C	C	O		A	4	2.6	0.65	1.35	0.4	33	0.45 0.5 0.5	28 – –			0.08 – –
1	0	Solder	L	M	C	D	O	0.5	6	3.3	0.3	0.75	0.25	7.5	0.65	26	0.15			
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		C	C	O		A	4	2.2	0.5	1.35	0.4	25	0.45 0.5 0.5	28 – –			0.08 – –
1	2	Solder	L	M	C	D	9 <sup>9</sup>	0.5	6	3.3	0.4			10	0.65	26	0.15			
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		C	O	9 <sup>9</sup>		A	4	2.2	0.5	1.2	0.4	25	0.45 0.5 0.5	28 – –			0.08 – –
1	4	Solder	L	M	C	D	O	0.5	6	3	0.3	0.75	0.25	7.5	0.65	26	0.15			
		Print straight <sup>6</sup> Angled <sup>6</sup>	Q		C	O	O		A	4	2	0.5	1.2	0.4	25	0.45 0.5 0.5	28 – –			0.08 – –



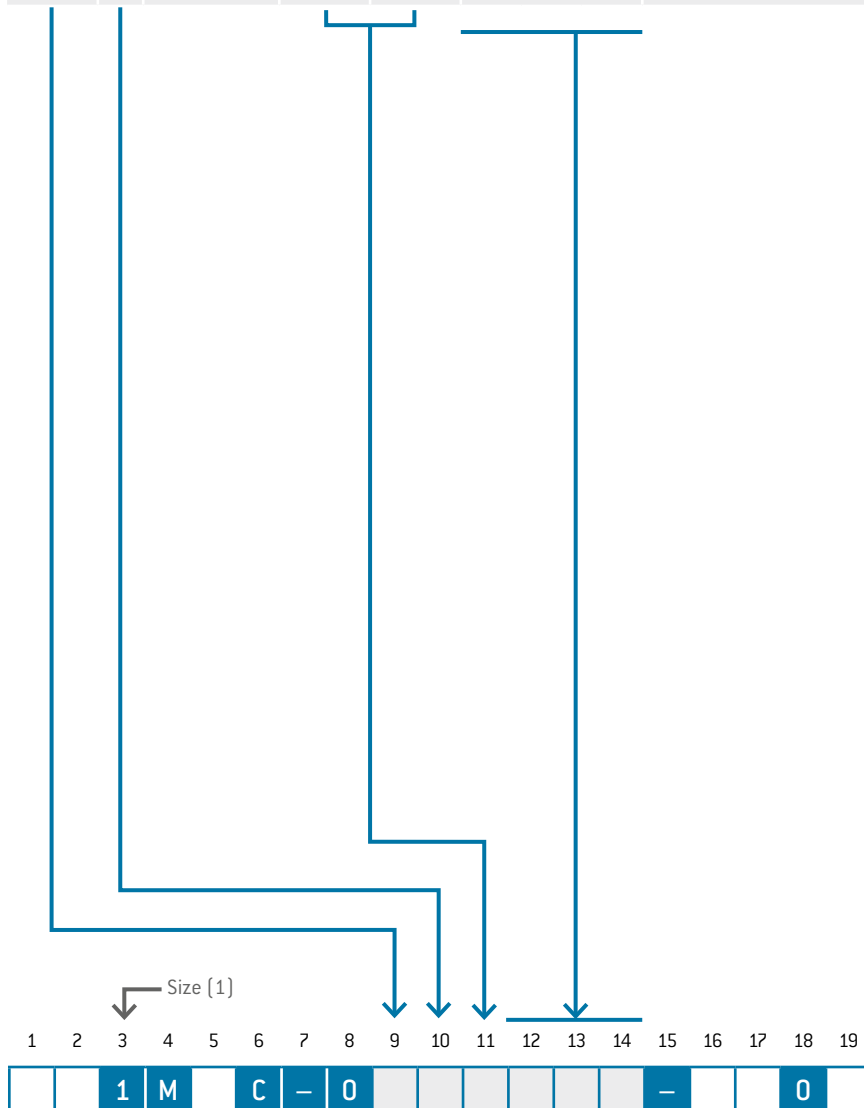
<sup>1</sup> Usable with receptacle styles G1/G5/ GA and GK  
<sup>2</sup> Derating factor, see page 107  
<sup>3</sup> SAE AS 13441:2004 method 3001.1 [kV DC]  
<sup>4</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 96  
<sup>5</sup> Max. operating voltage from mean sea level to 2,000 m in accordance with SAE AS 13441:2004 method 3001.1 [kV DC], further information on page 108.  
<sup>6</sup> PCB layouts (see page 85)  
<sup>7</sup> IEC 60664-1:2007 (VDE 0110-1:2008): pollution degree 2  
<sup>8</sup> IEC 60664-1:2007 (VDE 0110-1:2008): overvoltage category III / test voltage: 0.94 kVeff  
<sup>9</sup> Not compatible to competition

METAL HOUSING

# MEDIA FEED THROUGH



Media feed through	Feed through		Contact type		Part number key			Contact inner diameter	Working pressure max.	Termination diameter	Tube diameter max.
	1	Not shut off	Socket	Pin	1	1	0	mm	bar	mm	mm
F	1	Not shut off	B	S	1	1	0	2.5	2	4	6
	A	Shut off	B	S	On request <sup>1</sup>			1.9	2	4	6



<sup>1</sup> Not compatible to competition

# PCB LAYOUTS

For PCB contacts (Size 1)



	Straight	90° right-angled		Straight	90° right-angled
2 contacts			Contact borehole: $\varnothing 0.8$ mm	Contact borehole: $\varnothing 0.9$ mm	
3 contacts			Contact borehole: $\varnothing 0.8$ mm	Contact borehole: $\varnothing 0.9$ mm	
4 contacts			Contact borehole: $\varnothing 0.8$ mm	Contact borehole: $\varnothing 0.7$ mm	
5 contacts			Contact borehole: $\varnothing 0.8$ mm	Contact borehole: $\varnothing 0.7$ mm	
6 contacts			Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.7$ mm	
7 contacts			Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.7$ mm	
8 contacts			Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.7$ mm	
9 contacts			Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.7$ mm	
10 contacts			Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.7$ mm	
12 contacts			Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.7$ mm	
14 contacts			Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.7$ mm	

All specifications are only valid for socket inserts, pin inserts on request. Further PCB layouts upon request

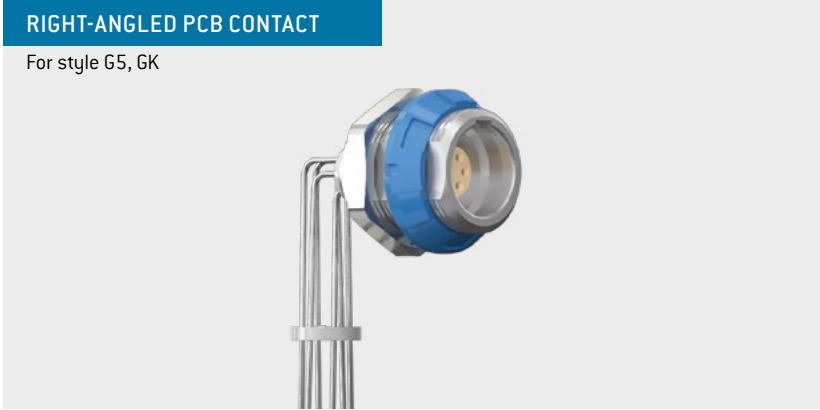
# RIGHT-ANGLED PCB CONTACTS IN THE RECEPTACLE



A

## RIGHT-ANGLED PCB CONTACT

For style G5, GK



### Technical Data

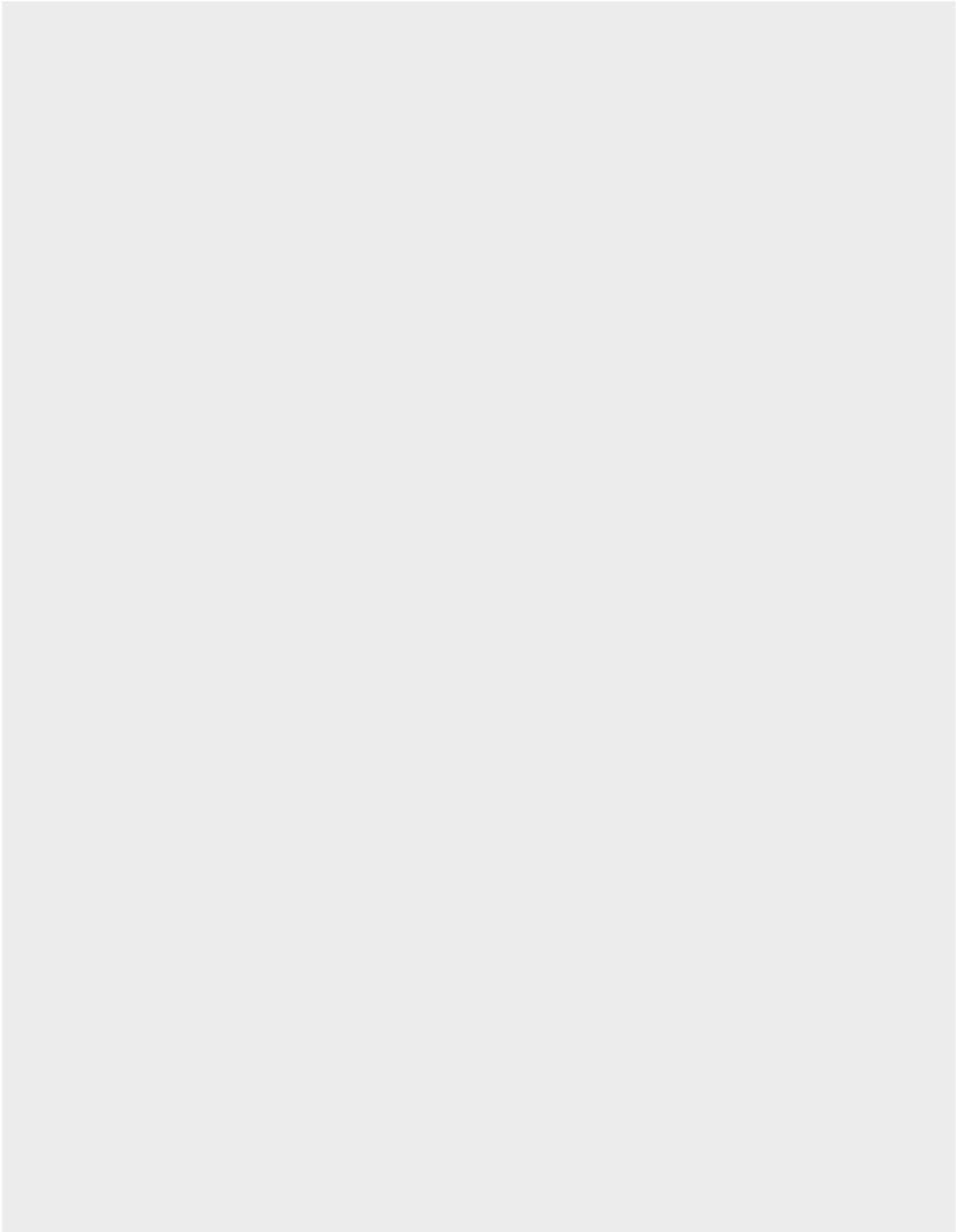
- PCB layouts, see page [85](#)

Contact diameter	Termination diameter
mm	mm
0.5	0.5
0.7	0.6
0.9	0.6
1.3	0.8

Size [1]

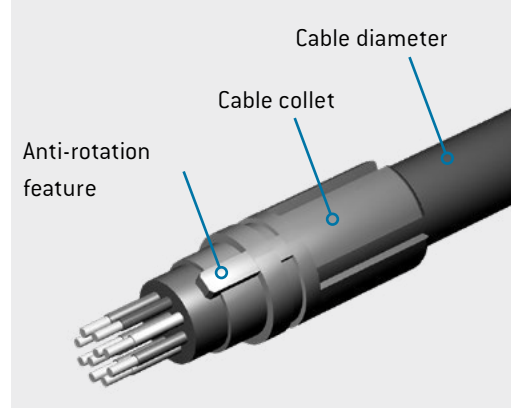
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		1	M		C	-	P							-	0			

# FOR YOUR NOTES



# CABLE COLLET SYSTEM

For plugs and in-line receptacles



Cable diameter mm	Material	Part number
> 2.7–3.9	PSU	KM1.020.121.934.007
> 4.0–5.2		KM1.020.122.934.007
> 5.3–6.5		KM1.020.123.934.007
> 2.7–3.9	PEI	KM1.020.121.933.008
> 4.0–5.2		KM1.020.122.933.008
> 5.3–6.5		KM1.020.123.933.008

**APPLICATION:** for all plugs and in-line receptacles

**USE:** cable collet for strain relief

3	9
5	2
6	5
3	9
5	2
6	5

Size (1)

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





# COLOR CODINGS

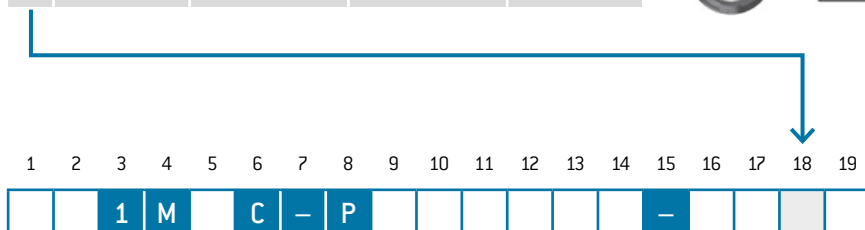
Color coding of the front nut only for receptacles G5 and GK  
 Color coding of the back nut only for straight plug S1 and in-line receptacle K5

The color coding here is based on the cable bend relief in combination with back nut made of brass.

Code C (brass chromate) always for straight plug S2 and receptacles G1 and GA



	Color	Similar RAL systems		Material
		Design	Classic	
2	Red	030 40 40	3002	Plastic (PSU)
3	White	000 90 00	9003	
4	Yellow	095 80 70	1016	
5	Green	170 60 50	6032	
6	Blue	250 40 40	5019	
7	Gray	000 55 00	7045	
8	Black	000 25 00	9004	Plastic (PSU/PEI)
C	Chrome matt	–	–	Brass

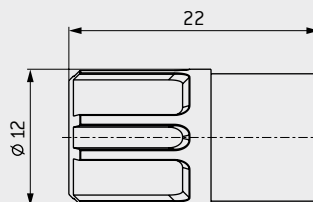


# DEFINITION OF THE BACK NUTS

Applicable to all straight plugs as well as in-line receptacles

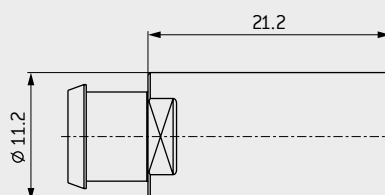


## STANDARD BACK NUT



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.111.934.002	PSU	Red	030 40 40	3002
KM1.020.111.934.003		White	000 90 00	9003
KM1.020.111.934.004		Yellow	095 80 70	1016
KM1.020.111.934.005		Green	170 60 50	6032
KM1.020.111.934.006		Blue	250 40 40	5019
KM1.020.111.934.007		Gray	000 55 00	7045
KM1.020.111.933.008	PEI	Black	000 25 00	9004
KM1.020.111.315.000	Brass	Chrome matt	–	–

## STANDARD BACK NUT FOR CABLE BEND RELIEF<sup>1</sup>



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.113.934.007	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.020.113.933.008	PEI	Black	000 25 00	9004
KM1.020.113.315.000	Brass	Chrome matt	–	–

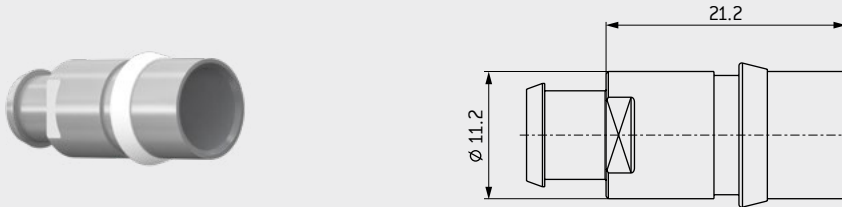
<sup>1</sup> Silicone cable bend reliefs have to be ordered separately (see page 92). <sup>2</sup> Additional colors on request

# DEFINITION OF THE BACK NUTS

Applicable to all straight plugs as well as in-line receptacles

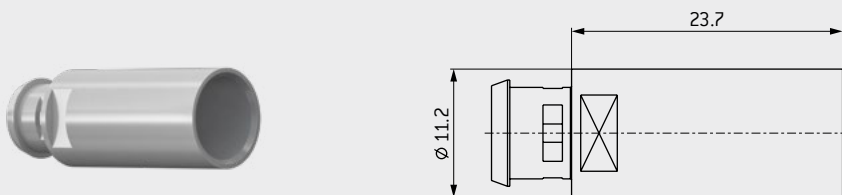


## STANDARD BACK NUT FOR CABLE BEND RELIEF FOR PLUG IP64<sup>1</sup>



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.026.113.934.107	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.026.113.933.108	PEI	Black	000 25 00	9004
KM1.026.113.315.000	Brass	Chrome matt	–	–

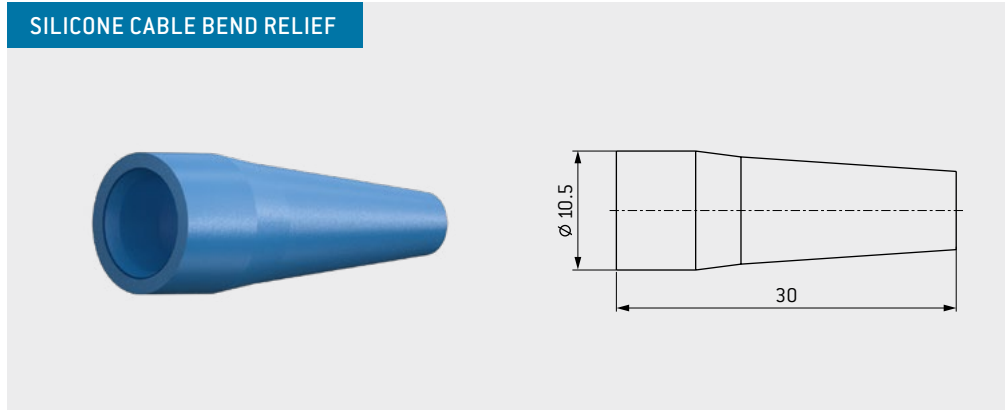
## STANDARD BACK NUT FOR OVERMOLDING ON REQUEST



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.114.934.007	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.020.114.934.008		Black	000 25 00	9004
KM1.020.114.933.008	PEI	Black	000 25 00	9004

<sup>1</sup> Silicone cable bend reliefs have to be ordered separately (see page 92). <sup>2</sup> Additional colors on request

# SILICONE CABLE BEND RELIEF



## TEMPERATURE RANGE

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

## COLORS

Part number	Cable jacket (Ø outside)	
	min.	max.
701.023.____.965.025	2.5	3
701.023.____.965.030	3	3.5
701.023.____.965.035	3.5	4
701.023.____.965.040	4	5
701.023.____.965.050	5	6
701.023.____.965.060	6	6.5

Color code	Color	RAL-Nr. <sup>1</sup> (similar) Classic
202	Red	3020
203	White	9010
204	Yellow	1016
205	Green	6029
206	Blue	5002
207	Gray	7005
208	Black	9005



The silicone cable bend reliefs must always be ordered separately.

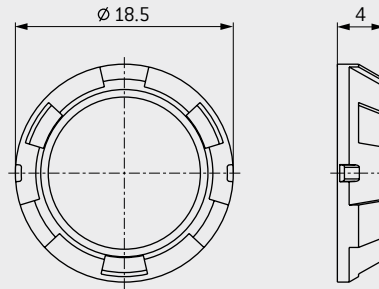
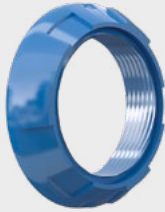
<sup>1</sup> Because of differing basic materials, the colors may differ slightly from RAL numbers.

# NUTS



## FRONT NUT

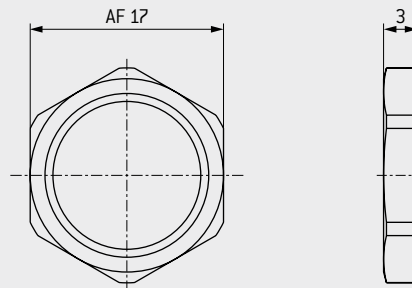
For receptacle style 5



Part number	Material	Color	Similar RAL system Design
KM1.311.002.934.002	PSU	Red	030 40 40
KM1.311.002.934.003		White	000 90 00
KM1.311.002.934.004		Yellow	095 80 70
KM1.311.002.934.005		Green	170 60 50
KM1.311.002.934.006		Blue	250 40 40
KM1.311.002.934.007		Gray	000 55 00
KM1.311.002.933.008	PEI	Black	000 25 00

## HEX NUT

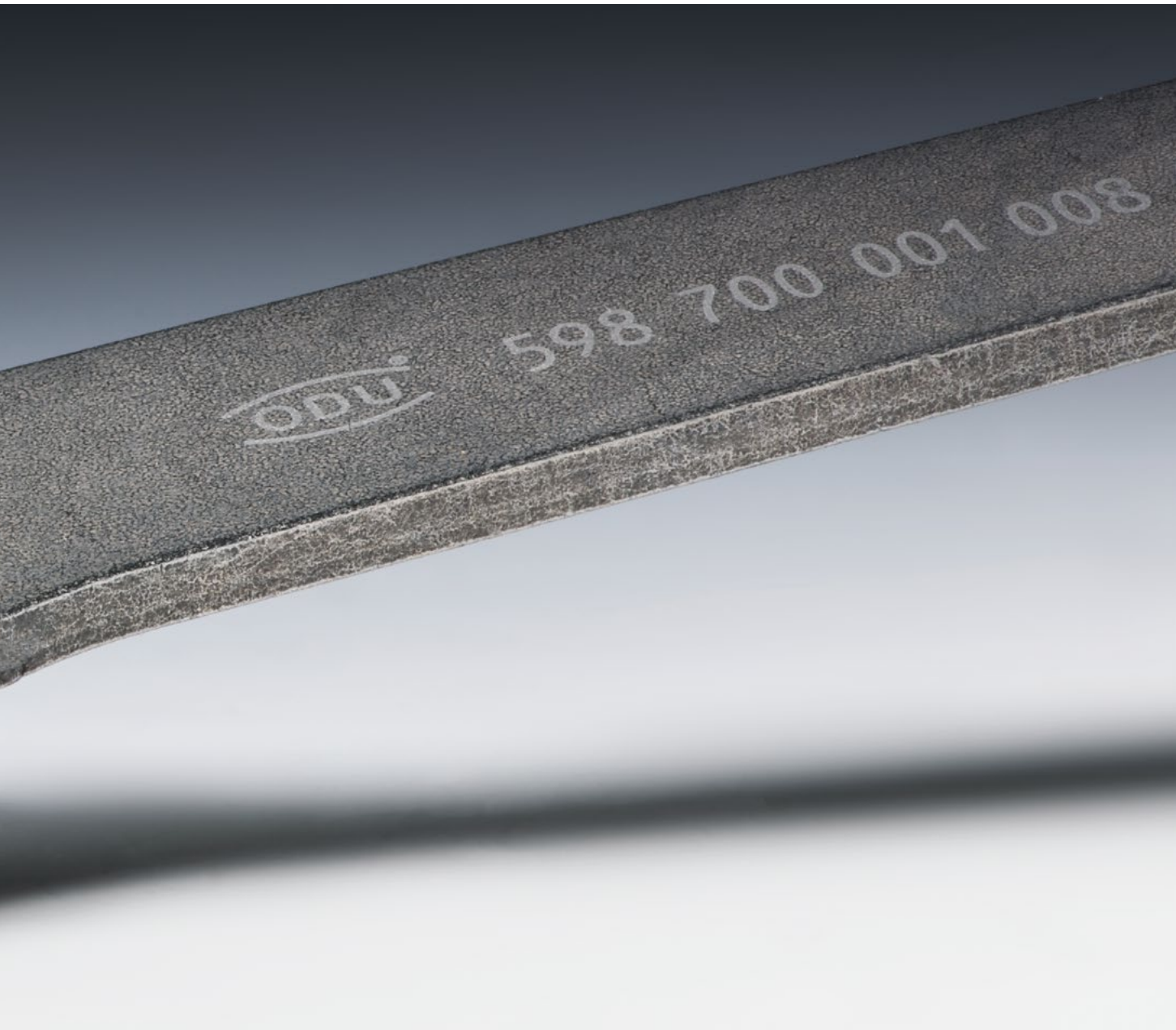
For receptacle style 1, 5 and A



Part number	Material
021.310.115.304.000	Nickel-plated brass



ODU MEDI-SNAP®



## TOOLS

The following pages contain tools and wrenches to ensure that your ODU connectors function flawlessly.

# CRIMPING TOOLS/ASSEMBLY TOOLS



**PART NUMBER CRIMPING TOOL**  
**080.000.051.000.000**

Part number positioner,  
 see table

## PROCESSING TOOL FOR CRIMP CONTACTS

Digital adjustment, multiposition

Size	Number of contacts	Contact diameter mm	Termination cross-section		Adjustment dim. mm	Positioner	Positioning setting		Removal tool
			AWG	mm <sup>2</sup>			Pin	Socket	
1	6 to 8	0.7	24–26	0.25–0.15	0.67	080.000.051.109.000	9	3	087.7CC.070.001.000
			22–26	0.38–0.15	0.67	080.000.051.109.000	9	3	087.7CC.070.001.000
	4 to 5	0.9	22–26	0.38–0.15	0.67	080.000.051.109.000	8	2	087.7CC.090.001.000
			20–24	0.50–0.25	0.67	080.000.051.109.000	8	2	087.7CC.090.001.000



# CRIMPING TOOLS/ASSEMBLY TOOLS



**PART NUMBER CRIMPING TOOL**  
080.000.037.000.000

Part number positioner,  
see table

### PROCESSING TOOL FOR CRIMP CONTACTS

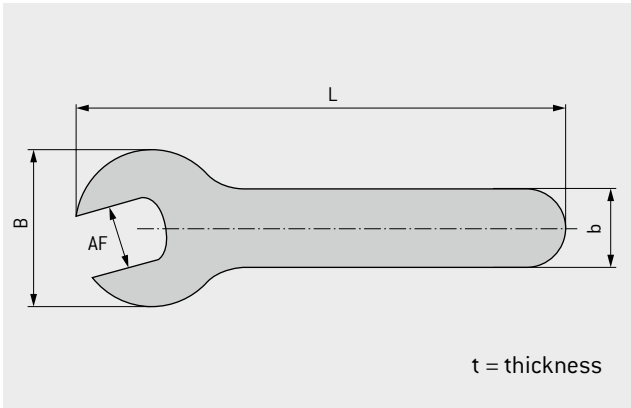
Mil approved, single position

Size	Number of contacts	Contact diameter mm	Termination cross-section		Positioner		Selector setting		Removal tool
			AWG	mm <sup>2</sup>	Pin	Socket	Pin	Socket	
1	6 to 8	0.7	22–26	0.38–0.15	081.KM1.001.948.037	081.KM1.001.948.037	4	4	087.7CC.070.001.000
		0.7	24–26	0.25–0.15	081.KM1.001.948.037	081.KM1.001.948.037	4	4	087.7CC.070.001.000
	4 to 5	0.9	20–24	0.50–0.25	081.704.001.849.037	081.KM1.001.949.037	7/6/5 <sup>1</sup>	7/6/5 <sup>1</sup>	087.7CC.090.001.000
		0.9	22–26	0.38–0.15	081.704.001.849.037	081.KM1.001.949.037	4	4	087.7CC.090.001.000

<sup>1</sup> For AWG 20 position 7/for AWG 22 position 6/for AWG 24 position 5

# SPANNER WRENCH SIZE 1

Part number	Dimensions in mm				
	AF	t	B	L	b
598.700.001.008.000	17	3	35.5	145	15



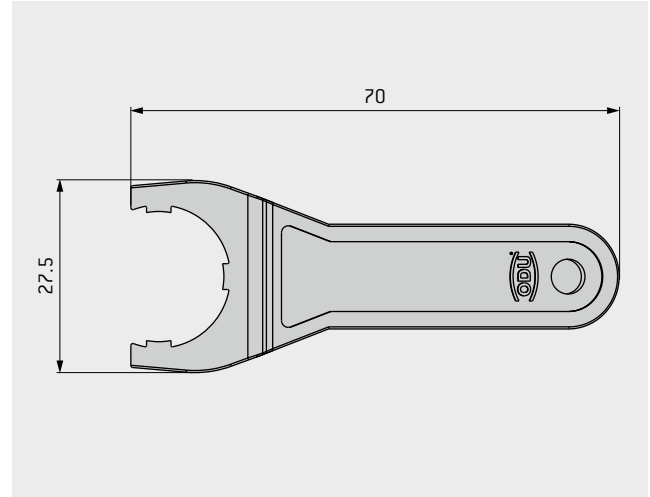
Tightening torque of the hex nut receptacle (styles 1/4/5/6/A): 1 Nm

# SPANNER WRENCH SIZE 2



PART NUMBER KM2.098.002.923.008

For slotted mounting nuts receptacle styles 1, 4, 5

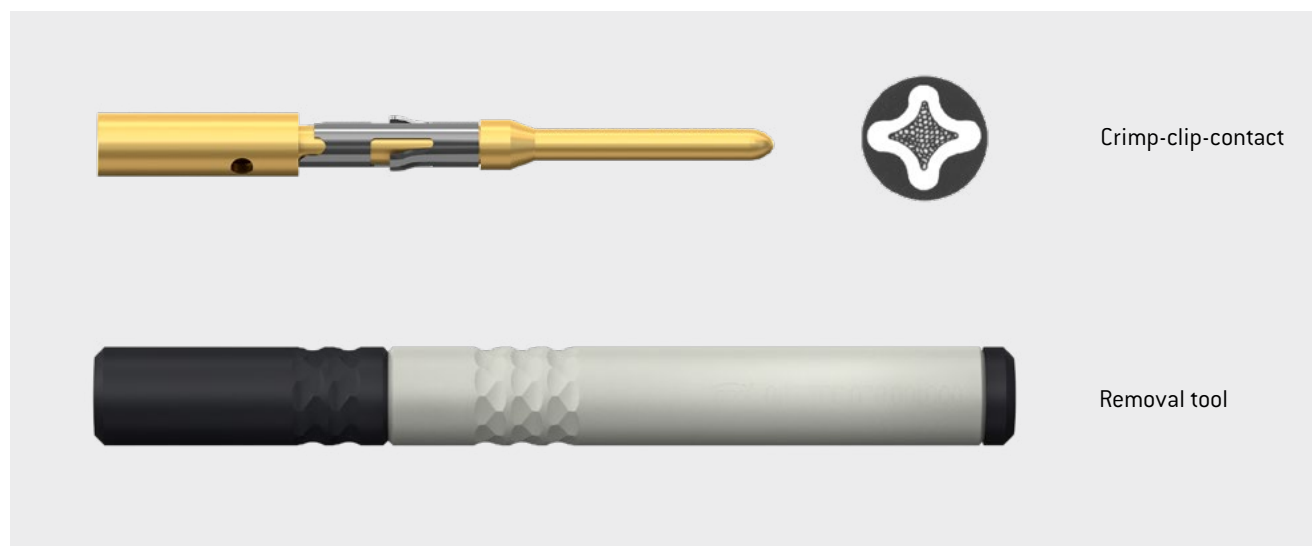


# BOX SPANNER FOR RECEPTACLE FRONT NUTS

Part number	Size	Material front nut
KM1.098.001.923.008	1	Plastic
KM1.098.002.902.000	1	Metal
KM2.098.001.923.008	2	Plastic



# REMOVAL TOOLS FOR CRIMP-CLIP-CONTACTS



Crimp-clip-contact

Removal tool

Part number	Contact Ø mm
087.7CC.070.001.000	0.7
087.7CC.090.001.000	0.9

## NOTE ON ADHESIVE

Recommended adhesive for the back nut

Scotch-Weld™, DP 190 (Gray)

ODU PART NUMBER: 890.204.000.030.025

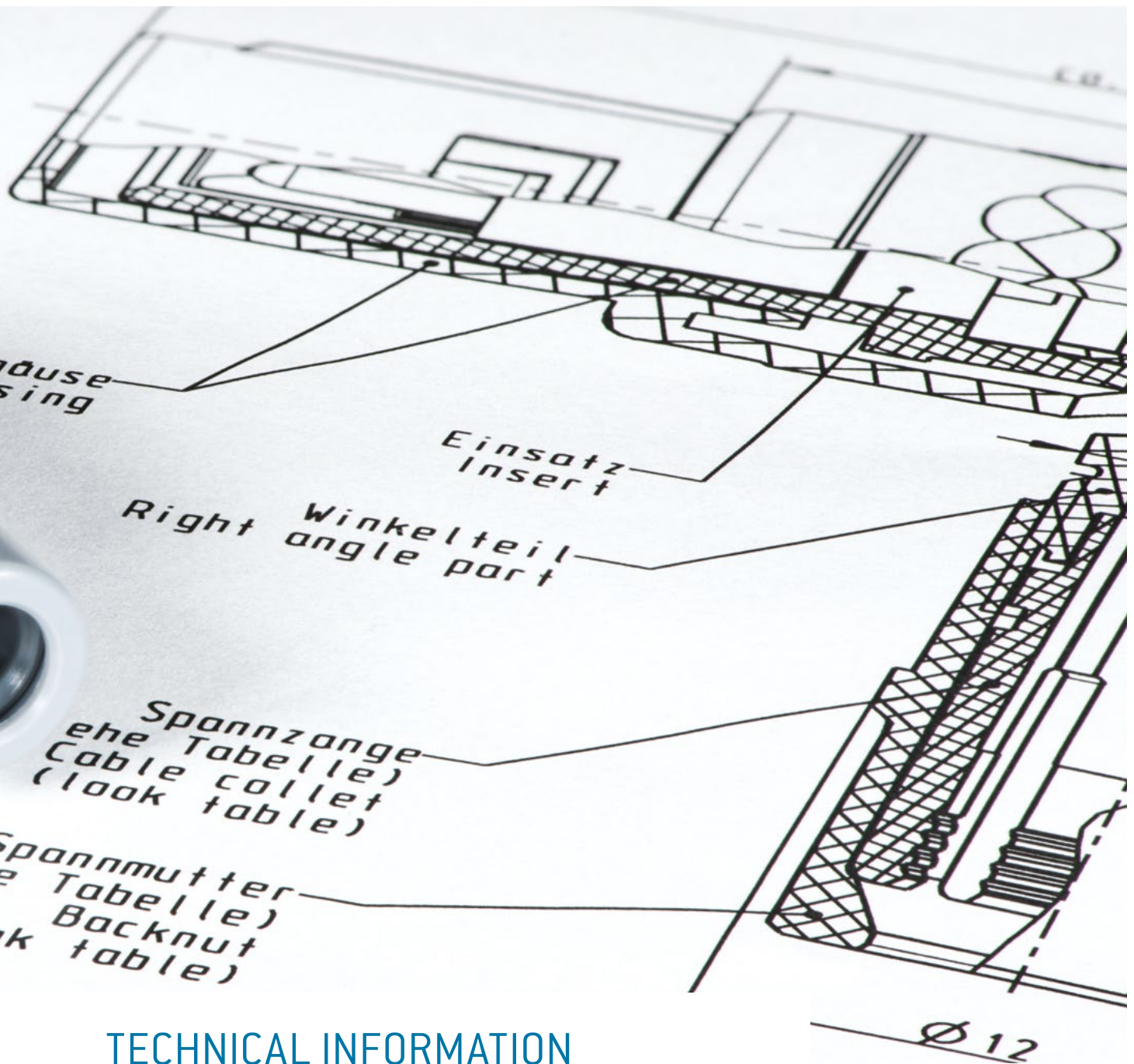
Recommended cleaning agent: Isopropyl alcohol

Caution! Cracks may later appear with the use of unauthorized adhesives and cleaning agents.

For assembly instructions, please refer to our website: [www.odu-usa.com/downloads/assembly-instructions](http://www.odu-usa.com/downloads/assembly-instructions)



ODU MEDI-SNAP®



## 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.

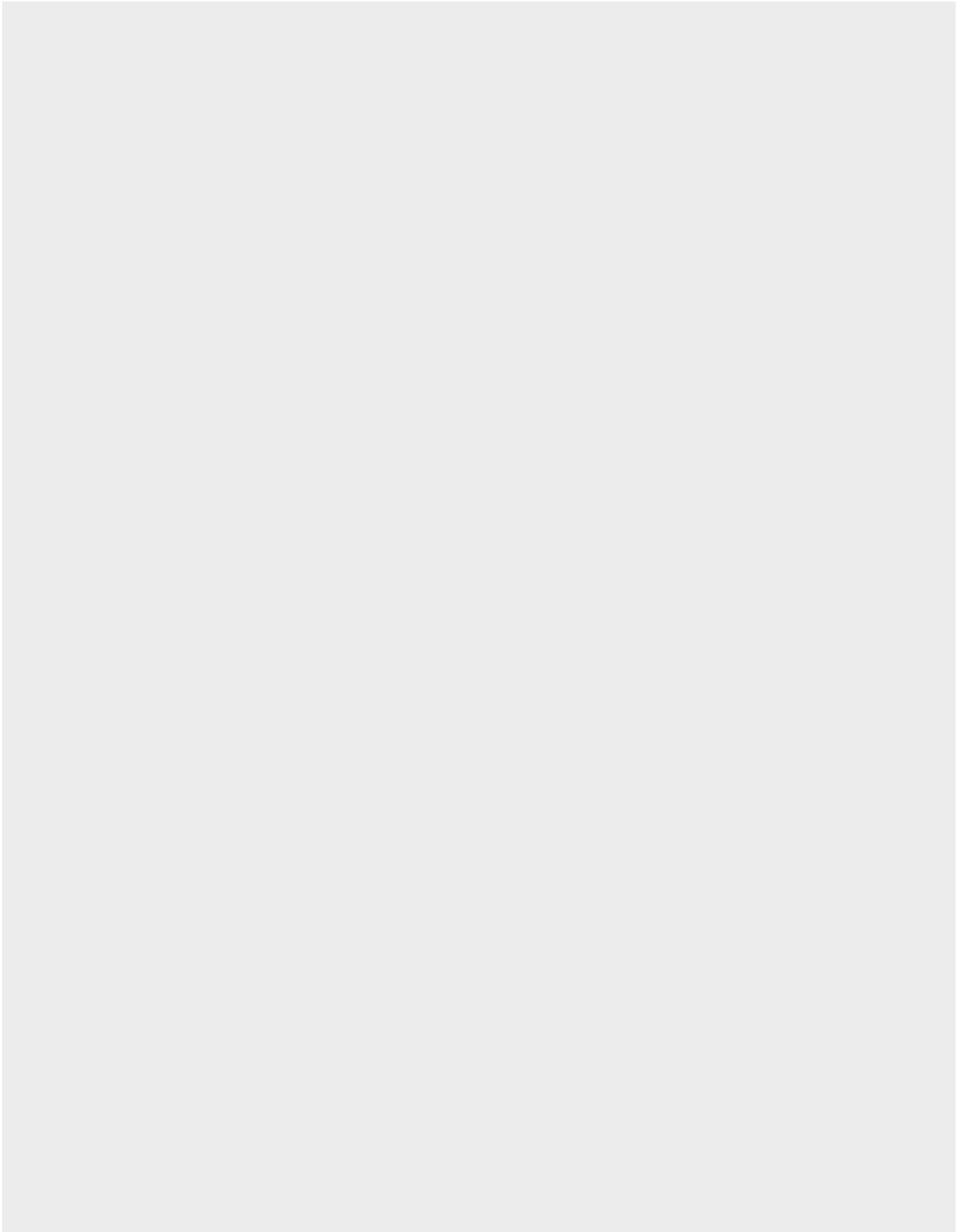
# INTERNATIONAL PROTECTION CLASSES



Acc. IEC 60529:2013 (VDE 0470-1:2014)

Code letters (International Protection)		First code number (Degrees of protection against access to hazardous parts respectively against solid foreign objects)		Second code number (Degrees of protection against water)		
IP		6		5		
Code number	Protection against access to hazardous parts / Protection against ingress of solid foreign objects			Code number	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 large foreign objects		Protection against contact with the back of the hand / Protection against solid foreign objects $\varnothing \geq 50$ mm	1	Protection against dripping water	Protection against vertically falling waterdrops
2	Protection against medium-sized foreign objects		Protection against contact with the fingers / Protection against solid foreign objects $\varnothing \geq 12.5$ mm	2	Protection against angular dripping water (from angles)	Protection against waterdrops falling at an angle (any angle up to 15° of the vertical)
3	Protection against small foreign objects		Protection against contact with tools / Protection against solid foreign objects $\varnothing \geq 2.5$ mm	3	Protection against spray water	Protection against spray water (any angle up to 60° of the vertical)
4	Protection against granular foreign objects		Protection against contact with a wire / Protection against solid foreign objects $\varnothing \geq 1.0$ mm	4	Protection against splashing water	Protection against splashing water from any direction
5	Dustproof		Protection against contact with a wire / Protection against uncontrolled ingress of dust	5	Protection against water jet	Protection against water jet from any direction
6	Dustproof		Protection against contact with a wire / Complete protection against ingress of dust	6	Protection against powerful water jet	Protection against powerful water jet from all directions
				7	Protection against the effects of temporary immersion in water	Protection against ingress of water negatively impacting the proper function by temporary submersion into water
				8	Protection against the effects of continuous immersion in water	Protection against ingress of quantities of water negatively impacting the proper function by continuous submersion into water
				9	Protection against high pressure water jet featuring high temperatures	Protection against water from all directions characterized by high pressure and high temperatures

# FOR YOUR NOTES



# HOUSING MATERIALS/SURFACES



Component	Material designation	Surface
Housing	PSU <sup>1</sup> /PEI <sup>1</sup> /Brass	
Back nut Cable collet Front nut Mounting nut	PSU <sup>1</sup> /PEI <sup>1</sup>	
Insulator	PEEK	
Hex nut	Brass	Ni
Contacts	Brass	Au

## INSULATOR MATERIALS (ROHS 2011/65/EU COMPLIANT)

	Norm	Unit	PSU	PEI	PEEK
Flammability rating	UL 94		V-0/4.5	V-0/0.41	V-0/1.5
Operation temperature		°C	-50 to +170°	-50 to +170°	-50 to +250°
Dielectric strength	IEC 60243-1:2013 (VDE 0303-21:2014)	kV/mm	17	27/1.6 (in oil)	19
Comparative figure of the creep resistance CTI	IEC 60112: 2009 (VDE 0303-11:2010)		150	150	175
Water absorption	ASTM D 570:1998 / ISO 62:2008	%	0.3	0.25	0.1
Sterilization (autoclaving)	DIN EN 13060:2015	Quantity	~ 20	> 200	> 200
Insulation resistance	IEC 60512-3-1:2002 (DIN EN 60512-3-1:2003-01)	Ω			> 1 × 10 <sup>12</sup> Ω

All values in the new condition

## NOTE ON ADHESIVE

Recommended adhesive for the back nut  
Scotch-Weld™, DP 190 (Gray)  
**ODU PART NUMBER: 890.204.000.030.025**

Caution! Cracks may later appear with the use of unauthorized adhesives and cleaning agents.

Recommended cleaning agent: Isopropyl alcohol

<sup>1</sup> Corresponding to the version, either the material PSU or PEI is used for all plastic component parts (except insulator) of a complete plug, in-line receptacle or receptacle.



# TERMINATION TECHNOLOGIES



In general, insulators with socket contacts are installed in the live part (to provide protection from accidental touch). The means of mounting the contacts in the insulator is important on account of the termination technologies. Termination technologies for ODU MEDI-SNAP® connectors include: soldering, crimping and PCB.

## SOLDER TERMINATION



## CRIMP-CLIP-CONTACT FOR PEEK INSULATOR



## PRINT TERMINATION



## 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. Accordingly, insulators and individual contacts – and not complete contact inserts – are supplied for the crimp termination. The contact processing for the production of connecting cables via crimping creates a secure, durable and corrosion-free contact. Cold compaction (crimping) compresses the conductor and contact material to the press points so as to form a gas-tight connection with tensile strength to fit the conductor material. 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.

# CONVERSIONS/AWG (AMERICAN WIRE GAUGE)



Circular wire					
AWG	Diameter		Cross-section mm <sup>2</sup>	Weight kg/km	Max. resistance Ω/km
	Inch	mm			
10 (1)	0.1019	2.590	5.26	46.77	3.45
10 (37/26)	0.1150	2.921	4.74	42.10	4.13
12 (1)	0.0808	2.050	3.31	29.41	5.45
12 (19/25)	0.0930	2.362	3.08	27.36	6.14
12 (37/28)	0.0910	2.311	2.97	26.45	6.36
14 (1)	0.0641	1.630	2.08	18.51	8.79
14 (19/27)	0.0730	1.854	1.94	17.23	9.94
14 (37/30)	0.0735	1.867	2.08	18.870	10.50
16 (1)	0.0508	1.290	1.31	11.625	13.94
16 (19/29)	0.0590	1.499	1.23	10.928	15.70
18 (1)	0.0403	1.020	0.823	7.316	22.18
18 (19/30)	0.0052	1.321	0.963	8.564	20.40
20 (1)	0.0320	0.813	0.519	4.613	35.10
20 (7/28)	0.0390	0.991	0.563	5.003	34.10
20 (19/32)	0.0420	1.067	0.616	5.473	32.00
22 (1)	0.0253	0.643	0.324	2.883	57.70
22 (7/30)	0.0288	0.732	0.324	2.965	54.80
22 (19/34)	0.0330	0.838	0.382	3.395	51.80
24 (1)	0.0201	0.511	0.205	1.820	91.20
24 (7/32)	0.0250	0.635	0.227	2.016	86.00
24 (19/36)	0.0270	0.686	0.241	2.145	83.30
26 (1)	0.0159	0.404	0.128	1.139	147.00
26 (7/34)	0.0200	0.508	0.141	1.251	140.00
26 (19/38)	0.0220	0.559	0.154	1,370	131.00
28 (1)	0.0126	0.320	0.0804	0.715	231.00
28 (7/36)	0.0160	0.406	0.0889	0.790	224.00
28 (19/40)	0.0170	0.432	0.0925	0.823	207.00
30 (1)	0.0100	0.254	0.0507	0.450	374.00
30 (7/38)	0.0130	0.330	0.0568	0.505	354.00
30 (19/42)	0.0123	0.312	0.0720	0.622	310.00
32 (1)	0.0080	0.203	0.0324	0.288	561.00
32 (7/40)	0.0110	0.279	0.0341	0.303	597.10
32 (19/44)	0.0100	0.254	0.0440	0.356	492.00
34 (1)	0.0063	0.160	0.0201	0.179	951.00
34 (7/42)	0.0070	0.180	0.0222	0.197	1,491.00
36 (1)	0.0050	0.127	0.0127	0.1126	1,519.00
36 (7/44)	0.0060	0.150	0.0142	0.1263	1,322.00

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.

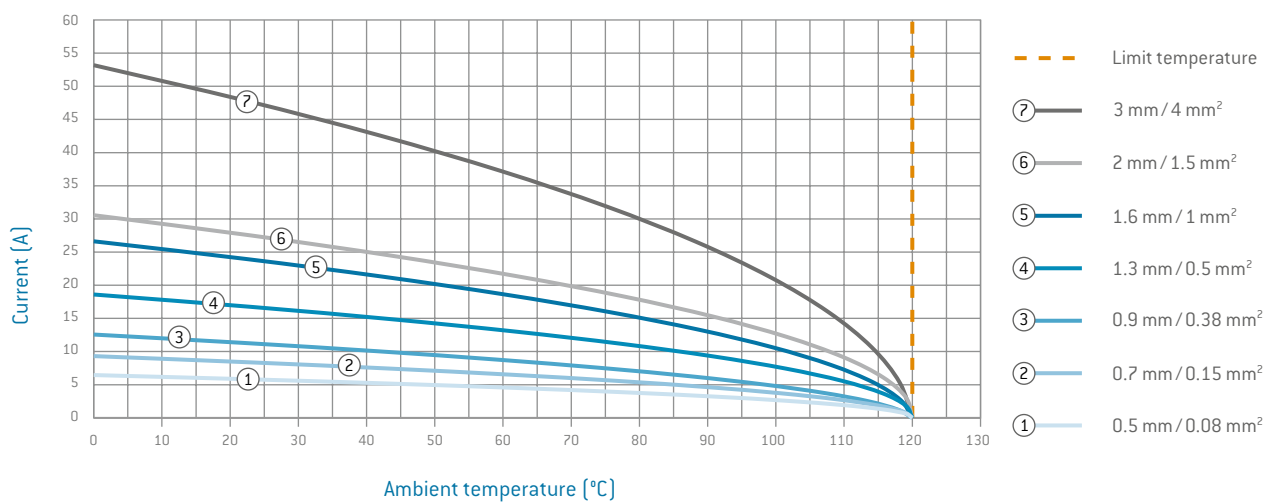
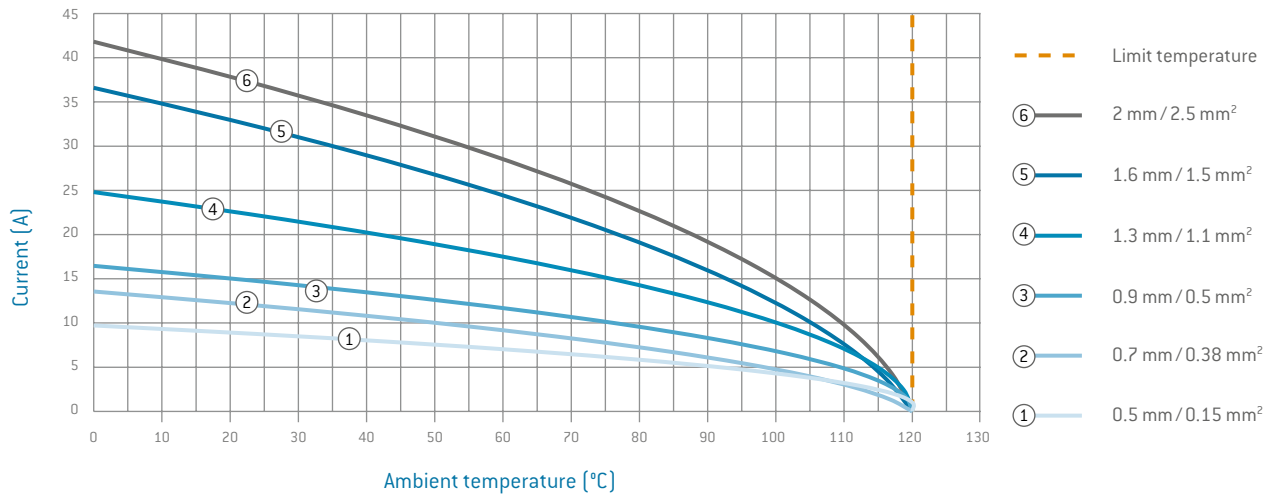
Accordingly, strands with the same AWG number but different numbers of wires differ in cross-section. For instance, an AWG 20 strand of 7 AWG 28 wires has a cross-section of 0.563 mm<sup>2</sup>, while an AWG 20 strand of 19 AWG 32 wires has a cross-section of 0.616 mm<sup>2</sup>.

Source: ASTM

# CURRENT LOAD OF TURNED CONTACTS



Nominal single contact current load for pin / slotted socket (nominal diameter 0.5 mm–2 mm)



## UPPER LIMIT TEMPERATURE OF STANDARD CONTACTS: +120 °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 VDE 0298-4:2013 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 x measured current). It factors in manufacturing tolerances as well as uncertainties in temperature measurement and measurement arrangement, see derating measurement method.

## RATED CURRENT (NOMINAL CURRENT)

The metrologically determined current which is permitted to flow continuously through all contacts at the same time and will increase the contact temperature by 45 Kelvin. The amperage is determined according to the derating measurement method (IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003)) and derived from the derating curve.

## DERATING FACTOR

Number of loaded wires	Derating factor
5	0.75
7	0.65
10	0.55
14	0.5
19	0.45
24	0.4

# OPERATING VOLTAGE



Acc. SAE AS 13441:2004 method 3001.1

The values specified in the catalog correspond to SAE AS 13441:2004 method 3001.1. The table values were determined according to EIA 364-20E:2015. The inserts were tested while mated, and the test current was applied to the pin insert.

75% of the dielectric withstanding voltage is used for the further calculation. The operating voltage is 1/3 of this value.

All tests were conducted at normal indoor climate and apply up to an altitude of 2,000 m. If there are any deviations, the reduction factors are to be factored in according to the applicable standards.

Test voltage: Dielectric withstanding voltage  $\times 0.75$

Operating voltage: Dielectric withstanding voltage  $\times 0.75 \times 0.33$

## ATTENTION:

With certain applications, the safety requirements for electrical devices are very strict in terms of operating voltage. In such cases, the operating voltage is defined according to the clearance and creepage distances between parts which could be touched.

When selecting such a connector, please contact us and let us know the safety standard which the product must meet.

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Test voltage: Dielectric withstanding voltage  $\times 0.75$

Operating voltage: Dielectric withstanding voltage  $\times 0.75 \times 0.33$

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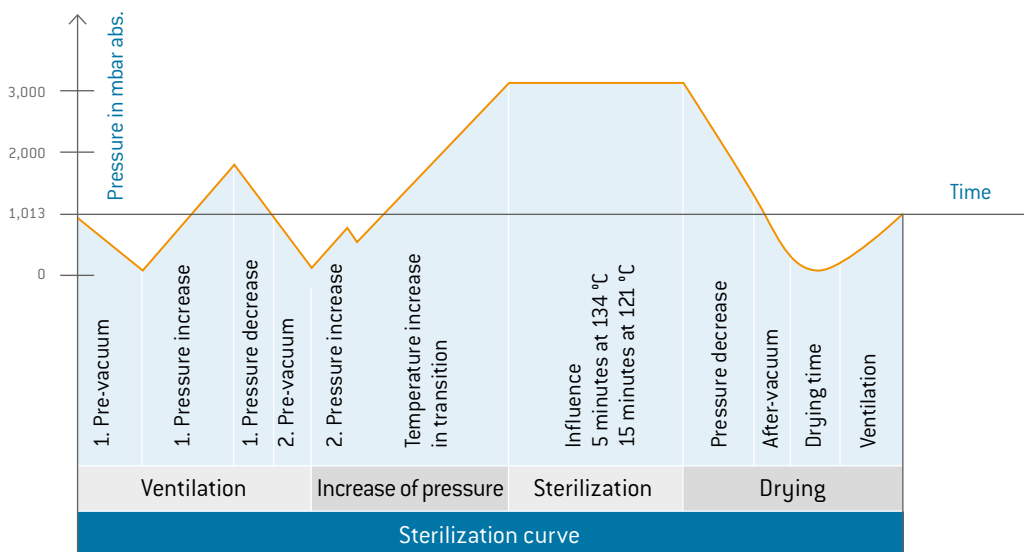
# AUTOCLAVING OF ODU MEDI-SNAP®



The ODU MEDI-SNAP® connectors are also available for the following sterilization processes: Steam sterilization with pre-vacuum or gravitation process. The connectors are tested with autoclave equipment in accordance with DIN EN 13060:2015 at 134 °C and 200 cycles (housing elements made of PEI).

**With PSU housing 20 autoclave cycles. With PEI housing 200 autoclave cycles.**  
**For other sterilization processes, please contact the appropriate indoor service.**

## Sterilization curve



# TECHNICAL TERMS



## AMBIENT TEMPERATURE

Temperature of the air or other medium in which a piece of equipment is intended to be used. (IEC 44/709/CDV:2014 (VDE 0113-1:2014)).

## AUTOCLAVABILITY

See page [109](#)

## AWG

American Wire Gauge – see page [106](#)

## BASE CURVE

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

## CHEMICAL RESISTANCE

Many secondary processing procedures use adhesives, cleaning agents or other chemicals on our products. Contact with unsuitable chemicals may have an adverse effect on the mechanical and electrical properties of the insulation and housing materials which specified properties may not be able to withstand. Please observe our processing suggestions and technical instructions in this catalog.

## CLEARANCE DISTANCE

The shortest distance in the air between two conductive parts.

## CONNECTORS

Also known as connectors without breaking capacity (COC): (IEC 61984:2008 (VDE 0627:2009)). An element which enables electrical conductors to be connected and is intended to create and/or separate connections with a suitable counterpart.

## CONNECTOR WITHOUT BREAKING CAPACITY (COC)

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

## CONTACT RESISTANCE

Total resistance value measured from terminal to terminal. In this case, the resistance is significantly lower than the contact resistance. The specifications are average values.

## 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. 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 conductors and be crimped by a crimping tool.

## CRIMP CONNECTION (CRIMP TERMINATION)

The permanent, non-detachable and solder-free mounting of a contact to a conductor via deforming or shaping under pressure to make a good electrical and mechanical connection. Executed with crimping tool, press or automatic crimping machine (see page [96](#)).

## 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.

## DEGREE OF POLLUTION

The effect of pollution is factored in as degree of pollution when measuring clearance and creepage distances. Four degrees of pollution are defined for the micro-environment: IEC 60664-1:2007 (VDE 0110-1:2008).

## DELIVERY FORM

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

## DERATING FACTOR

According to VDE 0298-4:2013, with connectors and cables over 5 contacts, the heating is greater than it is with individual contacts. For that reason, the aforementioned standard is calculated with a reduction factor.

## DERATING CURVE

See page [107](#)

# TECHNICAL TERMS



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

Measurement method to determine the current carrying capacity of connectors in consideration of the maximum permissible limit temperature (see page [107](#)).

## FIXED CONNECTORS

Intended for mounting on a fixed surface such as a frame, dock, device or wall (with ODU also receptacle or panel-mounted plug).

## FREE CONNECTORS

Intended for mounting on free ends of mobile leads and cables (with ODU also connectors, plugs, in-line receptacles).

## INSULATOR

Part of a connector which separates conductive parts with different potentials from one another; usually identical to the contact carrier.

## CODING (ORIENTATION)

Arrangement with which differing polarization of otherwise identical connectors prevents interchangeability. This is a good idea if two or more identical connectors are attached to the same device (see also compatible connectors, see pages [39](#), [62](#), [82](#)).

## LOWERMOST LIMIT TEMPERATURE

The lowest permissible temperature at which a connector may be operated. At ODU MEDI-SNAP®, it amounts to  $-50\text{ °C}$ .

## MATERIALS (STANDARD DESIGN)

See page [104](#)

## MATING AND UNMATING FORCE

The force required to fully insert or withdraw pluggable elements without the influence of a coupling or locking device.

## MATING CYCLES

Mechanical actuation of connectors and plug devices via push and pull action: A mating cycle consists of one insertion and withdrawal action. The default value for the ODU MEDI-SNAP® push-pull connectors is 2,000 mating cycles, for the break-away plugs it is up to 5,000 mating cycles.

## MAX. CONTINUOUS CURRENT

The metrologically determined amperage at room temperature (approx.  $20\text{ °C}$ ) 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 [107](#)).

## NOMINAL VOLTAGE

The voltage which the manufacturer specifies for a connector and relates to the operating and performance features.

## OPERATING TEMPERATURE FOR ODU MEDI-SNAP®

Range between the uppermost and lowermost temperature limits.  $-50\text{ °C}$  to  $+120\text{ °C}$  (see page [18](#)).

## OPERATING VOLTAGE

The nominal voltage of the power source for which the connector is being used. The operating voltage may not be higher than the nominal voltage of the connector.

## 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

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

## RATED CURRENT (NOMINAL CURRENT)

See page [107](#)

## RATED VOLTAGE

According to IEC 60664-1:2007 (VDE 0110-1:2008) standard "Value of a voltage which is specified by the manufacturer for a component, device or operating medium and relates to the operating and performance features."

# TECHNICAL TERMS



## 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 “fine-wire” conductor structure pursuant to IEC 60228:2004 (VDE 0295:2005; Class 5) or a “fine-wire” conductor structure (7/19 wire) according to AWG (ASTM B258-14).

## 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 (see page [105](#)).

## TEST VOLTAGE

The voltage which a conductor can withstand under defined conditions without dielectric breakdown or flashover.

## TIGHTNESS IEC 60529:2013 (VDE 0470-1:2014)

See protection types on page [102](#)

## UPPERMOST LIMIT TEMPERATURE

The maximum permissible temperature at which a connector may be operated. It includes contact heating through current-carrying capacity. With ODU MEDI-SNAP® standard TURNTAC® contacts, it amounts to +120 °C. Please consult ODU for high-temperature applications.

## 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.



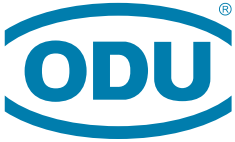


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#### GENERAL NOTE

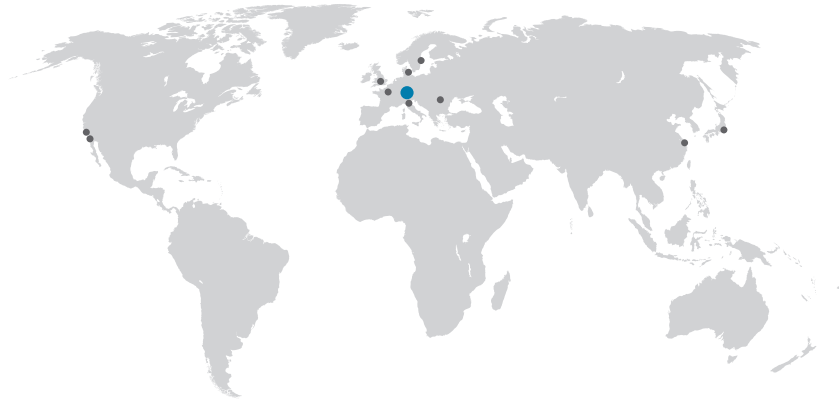
The connectors listed in this catalog are intended for use in high voltage and frequency ranges. Suitable precautionary measures must be taken to ensure that people do not come into contact with live conductors during installation and operation. All entries in this catalog were thoroughly reviewed before printing. ODU reserves the right to make changes based on the current state of knowledge without prior notice without being obliged to provide replacement deliveries or refinements of older designs.

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A PERFECT ALLIANCE.

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<b>Mexico</b>	ODU Mexico Manufacturing S.R.L. de C.V.
<b>Romania</b>	ODU Romania Manufacturing S.R.L.
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