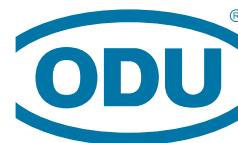


A PERFECT ALLIANCE.



NEW PRODUCTS

ODU-MAC[®]

Compact Modular Connector System

AUTOMATIC DOCKING
MANUAL MATING
MODULES
HOUSING
FRAME

NEW
2018/2019



MODULAR CONNECTORS

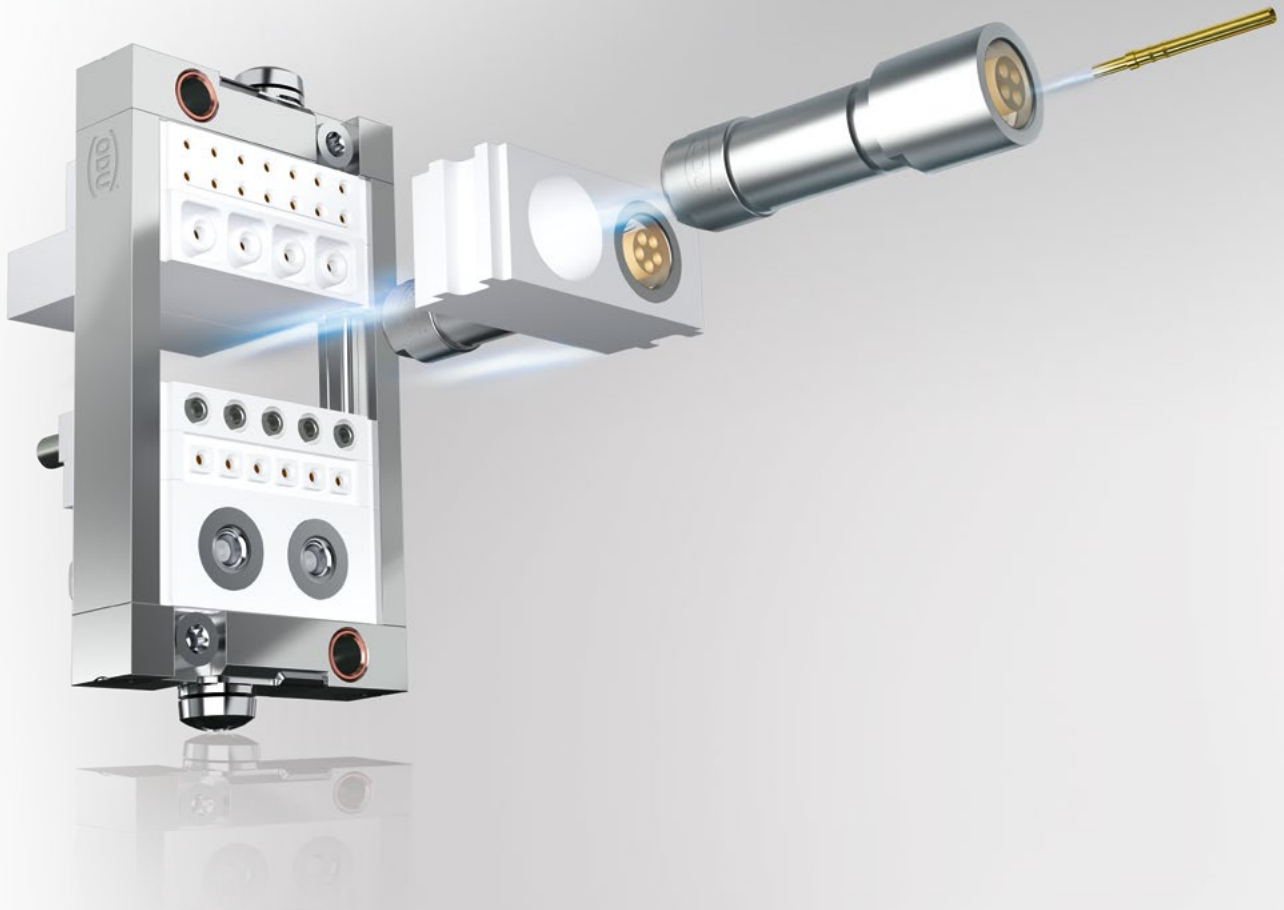
CIRCULAR CONNECTORS

ELECTRICAL CONTACTS

www.odu-connectors.com



**This brochure will tell you all about
the latest features of ODU-MAC®**
See the main catalogs for an
overview of the entire product range.



NEW PRODUCTS

Clickable page
numbers

ODU-MAC® FRAME **Silver-Line**

ODU-MAC® S+ (SPECIAL)

[4](#)

MODULES **Silver-Line** / **White-Line**

PE-MODULE 1 CONTACT

[6](#)

MODULE 1 CONTACT, FLUID MODEL

[8](#)

HOUSING **White-Line** / **Blue-Line**

ODU-MAC® RAPID PLASTIC HOUSING

[12](#)

HOUSING **Blue-Line**

ODU-MAC® PUSH-LOCK HOOD

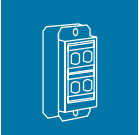
[18](#)

MODULES **Blue-Line**

EXPANDED MODULE RANGE

[19](#)

ODU-MAC® S+ (SPECIAL)



The new standard for docking tasks with optional PE transmission.

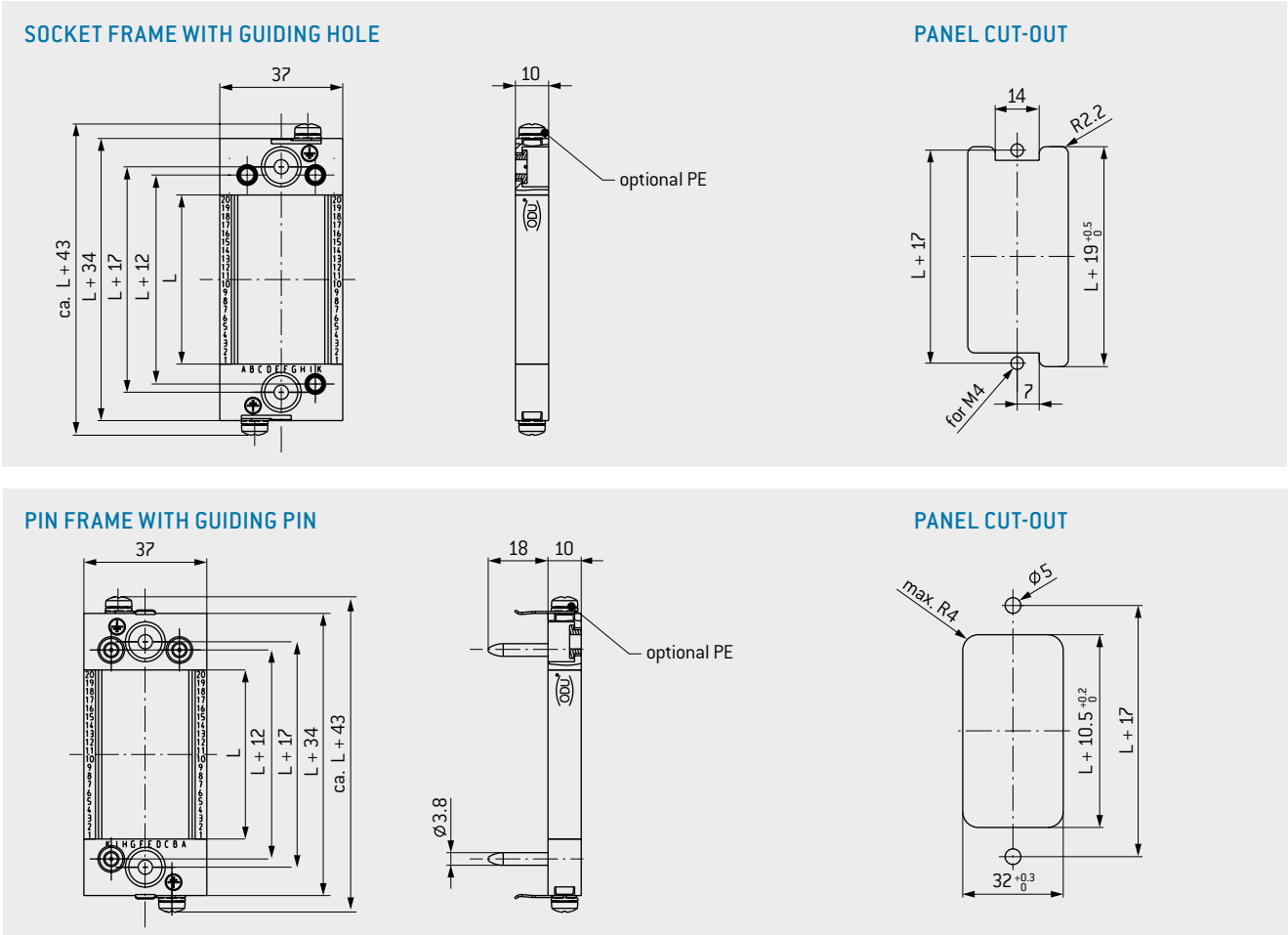


TECHNICAL DATA

- Tolerance compensation:
Axial play: 0.4 mm
Radial play: ± 1.2 mm
- Double-sided floating supported
- Minimum 100,000 mating cycles
- Optional PE transmission see page [5](#)



Non-magnetic version available upon request.

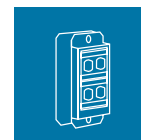


Description	Part number
Pin frame	611.750.0__600.000
Socket frame	610.750.0__600.000

L = Number of units \times 2.54
__ = Please enter desired number of units here
(03 to 60, above 61 on request)

NOT COMPATIBLE WITH ODU-MAC® S FRAME.

PE TRANSMISSION FOR ODU-MAC® S+ (SPECIAL)



GROUNDING KIT FOR S+ SOCKET FRAME



TECHNICAL DATA

- Tolerance compensation:
Axial play: 0.4 mm
Radial play: ± 1.2 mm
- Minimum 100,000 mating cycles
- Double-sided version
- Surface: nickel-plated



Non-magnetic version available upon request.

GROUNDING KIT MOUNTED



Part number	Connection threads
190.270.001.000.000	M4

Max. 6 mm² lug connection for PE transmission.

GROUNDING KIT FOR S+ PIN FRAME



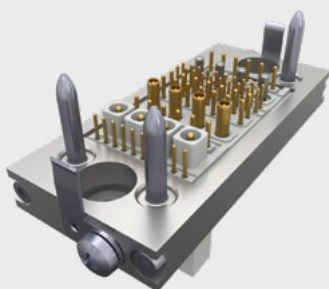
TECHNICAL DATA

- Tolerance compensation:
Axial play: 0.4 mm
Radial play: ± 1.2 mm
- Minimum 100,000 mating cycles
- Double-sided version
- Surface: nickel-plated



Non-magnetic version available upon request.

GROUNDING KIT MOUNTED

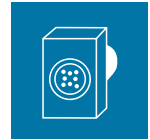


Part number	Connection threads
190.270.002.000.000	M4

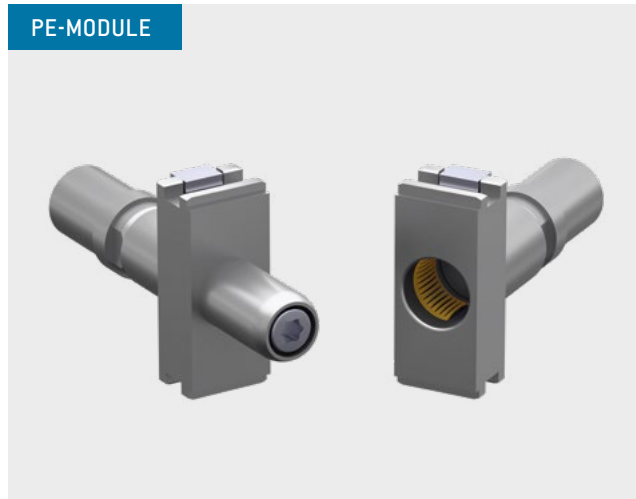
Max. 6 mm² lug connection for PE transmission.

CONTACT RESISTANCE COMPLIANT WITH $< 0.1 \Omega$ STANDARD.

PE-MODULE 1 CONTACT



Flexible protective grounding for all conductive housings and the docking frame versions.



Contact diameter: 10 mm
Mating cycles¹: minimum 10,000
Conductor cross-section: 10/16/25 mm²

TECHNICAL NOTES

- The module can be freely positioned in any frame and allows contacting to frame and conductive housing. This ensures protection in accordance with IEC 61140.
- When automatic docking, due to the high mating forces and the high cable cross sections we recommend the assembly in the ODU-MAC® P+ (Power) frame (see main catalog).
- Crimp information see main catalog.
- Novel Torx cone connection for optimized power transmission.

TECHNICAL DATA

Mechanical data

Total mating force (average)	33 N / Module
Total sliding force (average)	24 N / Module
Contact diameter	10 mm
Operating temperature	-40 °C to +125 °C
Mating cycles	minimum 10,000

Materials

Contact body	Cu alloy
Contact lamella	CuBe alloy
Contact finish	Ag

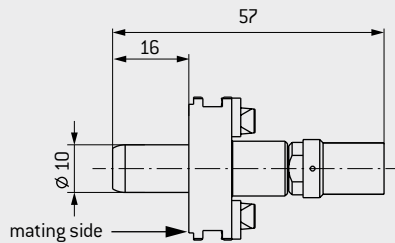
The cross-section of a PE-conductor must be designed in accordance with DIN EN 61984:2009-11 depending on the largest live conductor. A reduction of the cross-section from 25 mm² is possible. This relationship is explained via the following table:

Nominal cross-section of the current-carrying conductor mm ²	Minimum cross-section of the protective conductor in accordance with DIN EN 61984:2009-11 mm ²
10	10
16, 25, 35	16
50	25

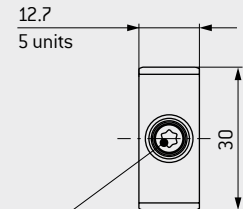
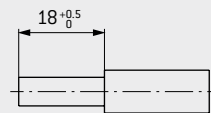
¹ Higher mating cycles are possible simply by replacing the module (including pin/socket from the rear). The termination area remains unaffected due to two-part contact.



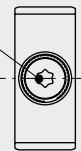
PE-MODULE PIN



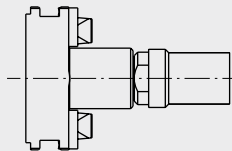
recommended stripping length



TX20



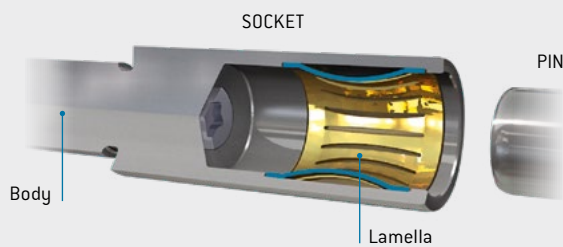
PE-MODULE SOCKET



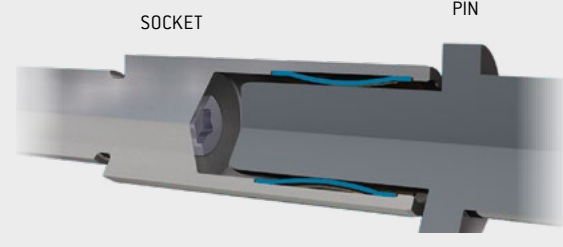
ODU LAMTAC® (CONTACTS WITH LAMELLA TECHNOLOGY)

In comparison to the ODU SPRINGTAC® contact, ODU LAMTAC® offers a lower number of contact surfaces. One or more of the stamped lamellas are mounted in a lathe-turned body. The contact resistance of 0.1Ω required by the standard is easily achieved.

DEMATED



MATED

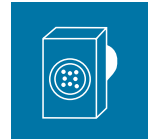


Description	Part number	Conductor cross-section ¹ mm ²	Nominal current ² Single contact A	Surge current kA	Contact resistance mΩ
PE-module/pin	181.886.100.200.000	25	125	> 20	0.1
PE-module/socket	178.886.100.201.000				
PE-module/pin	181.885.100.200.000	16	90	> 20	0.1
PE-module/socket	178.885.100.201.000				
PE-module/pin	181.884.100.200.000	10	65	> 20	0.1
PE-module/socket	178.884.100.201.000				
Conductor cross-section 35/50 mm ²	On request				

¹ Extra fine wire acc. to IEC 60228:2004 (VDE 0295:2005; class 5).

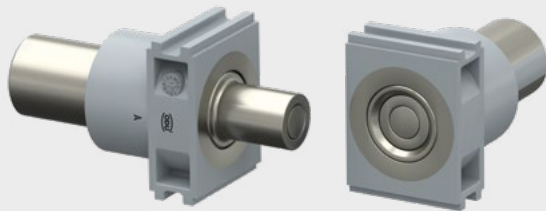
² Determined acc. to IEC 60512-5-1:2002 (DIN EN 60512-5-1:2003) at a temperature increase of 45 K.

MODULE 1 CONTACT



Suitable for conducting air, water and other fluids (e.g., liquid coolants).

FLUID MODEL



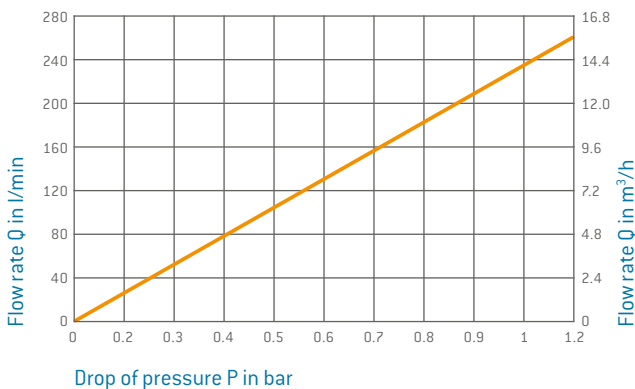
Two-sided shut-off

Operating pressure: 25 bar low-leakage model
Mating cycles¹: minimum 100,000
Tube termination: G1/4

TECHNICAL NOTES

- The contacts are pre-stressed in the mated state. The frame must maintain this pre-stress with a holding device.
- The use of flammable or explosive liquids or gases is not permitted.
- No O₂ model².
- Module can be used with housing solution with spindle, space requirements must be considered.
- Module cannot be used with docking solutions with M+ or T frames. For S frames we recommend extended guiding pins, and the P+ frame for high pin count.

FLOW RATE DIAGRAM AIR



TECHNICAL DATA

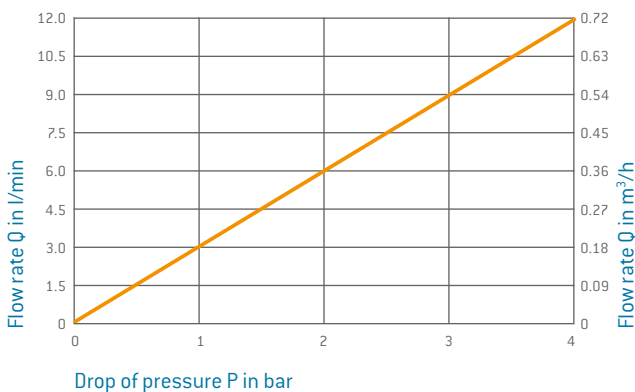
Mechanical data

Valid max. operating pressure	–0.95 to 25 bar
Tube termination	G1/4 inner thread for standard push-in connections
Total mating force (average)	60 N / Module
Total sliding force (average)	0 N / Module
Operating temperature	–15 °C to +90 °C
Mating cycles ¹	minimum 100,000

Materials

Insulator	Thermoplastic fiber glass reinforced acc. to UL-94
Fluid model	Cu alloy, nickel-plated
Sealing	NBR

FLOW RATE DIAGRAM WATER



REMOVAL TOOL



Removal of the fully assembled coupling (including cable).

PART NUMBER: 087.196.050.000.000

For an overview of all available tools, please see the main catalog.

The flow diagram refers to the blocking variant with a maximum gap between socket and pin piece of ≤ 0.5 mm. The pressure reduction increases in the event of a changed gap measurement.

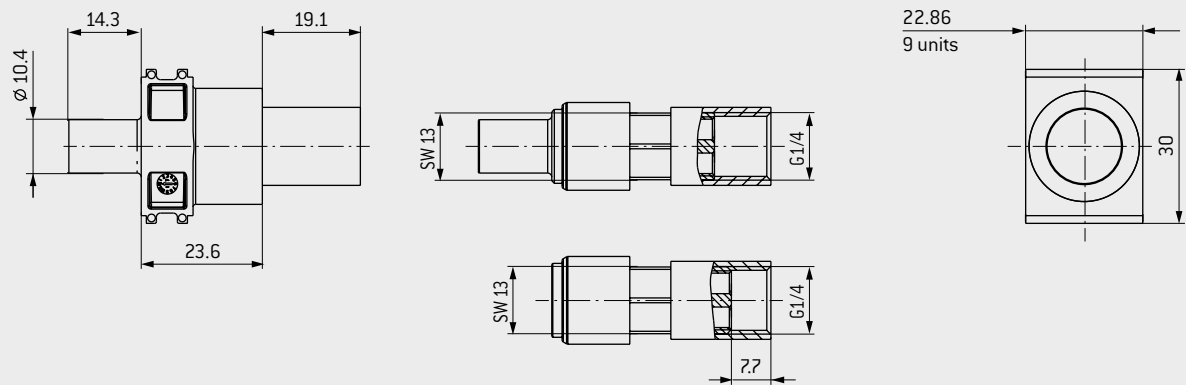
¹ Specified mating cycles possible with regular service intervals.

² Not suitable for mixtures containing more than 25% oxygen content or explosive gases.



INSULATOR PIN AND SOCKET

FOR ACCESSORIES SEE PAGE [10](#)



For use in a housing, the space requirements must be checked – this is only possible with spindle locking!

Module 1 contact	Part number
Insulator	611.177.101.923.000

Description	Part number	Termination	Outer diameter of tube
Plug sleeve (shut-off)	196.050.001.380.000	G1/4	see termination accessories on p. 10
Coupling plug (shut-off)	196.050.002.380.000	G1/4	

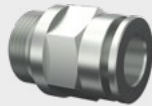
ACCESSORIES



FLUID MODEL G1/4

TERMINATION TYPE PUSH-IN

Push-in fitting



L connection



TECHNICAL NOTES

- Tightening torque 7.5 Nm

TECHNICAL DATA

Mechanical data

Valid operating pressure (static)	–0.95 to 16 bar
Operating temperature	–20 °C to +70 °C
Thread termination	G1/4

Description	Part number	Dim. A Outer diameter of tube mm	D5 Ø mm	L1 mm	L2 mm	Weight g	Silver-Line	White-Line
ODU-MAC® Push-in fitting G1/4	945.000.001.000.322	6	16	19.5	6.5	12.7	•	–
	945.000.001.000.323	8	16	21.5	6.5	13.6	•	–
	945.000.001.000.324	10	16	27.5	6.5	17.4	•	–
	945.000.001.000.325	12	16	28.5	6.5	26.2	•	–

Description	Part number	Dim. A Outer diameter of tube mm	D5 Ø mm	L1 mm	H1 mm	H2 mm	Weight g	Silver-Line	White-Line
ODU-MAC® L connection Push-in, Push-in G1/4	945.000.001.000.318	6	12	22	21.5	6.5	21.8	• ¹	o ²
	945.000.001.000.319	8	14	22.5	21.5	6.5	25.3	• ¹	o ²
	945.000.001.000.320	10	16	26	22	6.5	34	• ¹	• ³
	945.000.001.000.321	12	19	28.5	25.5	6.5	58.5	• ¹	o ³

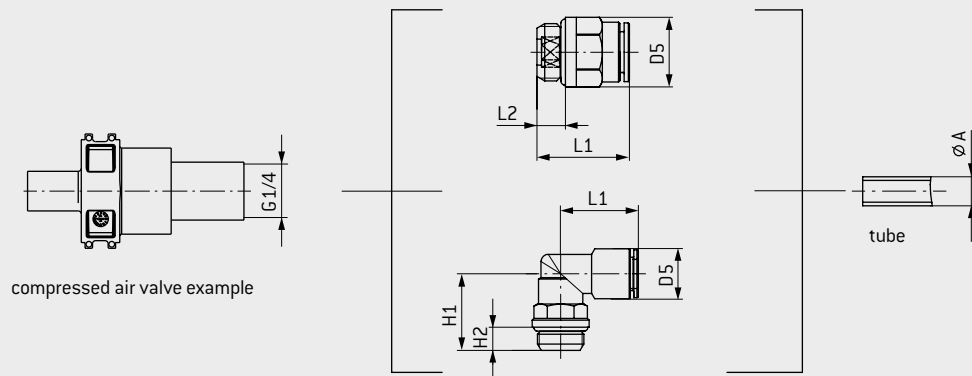
• Standard | o On request | – Not possible

¹ Check space requirements if using a strain relief housing.

² On request for size 3+4 (XXL possible). ³ Only XXL housing.



TERMINATION DIMENSIONS FOR ACCESSORIES USED WITH FLUID COUPLING



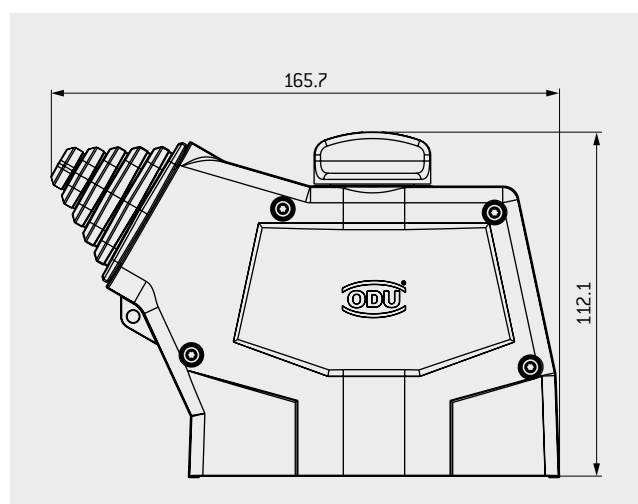
ODU-MAC® **White-Line** RAPID PLASTIC HOUSING

Half-shell principle with individually adjustable side cable outlet.

SPINDLE LOCKING




50% TIME SAVINGS



TECHNICAL DATA

Color of housing	Black (RAL 9005), White on request
Material	Plastic PC-Lexan, UL 94-V0
Protection class	IP 4X
Operating temperature	–40 °C to +125 °C
Grommet	Silicone (RAL 7035), UL 94-V0
Number of locking cycles	See explanation in main catalog
Coding	For spindle coding see main catalog (6 options)

Size	Part number	Description	Cable entry 	Part number protective cover (see page 16)
4	656.563.012.008.000	RAPID housing	max. 32 × 42 mm	656.563.012.018.000
4	615.093.021.200.003	Spindle locking 360° without coding		
4	615.093.021.200.013	Spindle locking 360° with coding, see catalog		
4	611.193.004.600.000	Case frame, pin side		

ODU-MAC® **White-Line**

RAPID RECEPTACLE VERSIONS

For mounting on your device or as a recessed plastic design.

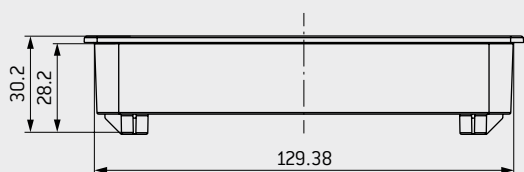
SPINDLE LOCKING



A RECESSED ASSEMBLY OF THE SOCKET FRAME
IN ASSEMBLY WALL



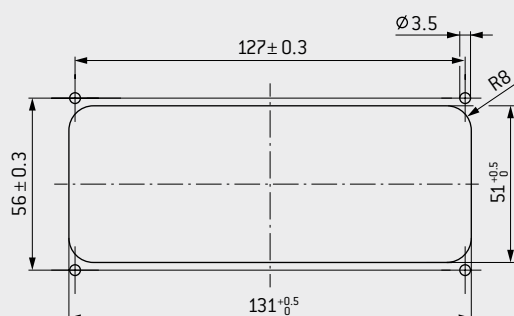
B DIRECT ASSEMBLY OF THE SOCKET FRAME
ON ASSEMBLY WALL



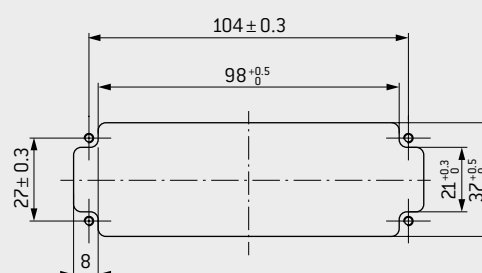
TECHNICAL DATA

Color of housing (recessed type)	Black (RAL 9005), White on request
Material	Plastic PC-Lexan, UL 94-V0
Protection class	IP 4X
Operating temperature	-40 °C to +125 °C

PANEL CUT-OUT A: RECESSED TYPE



PANEL CUT-OUT B: DIRECT ASSEMBLY



Size	Part number	Description	Part number protective cover [see page 16]
4	656.563.001.008.000	Recessed type receptacle, version A	656.563.011.018.000
4	610.193.000.600.000	Housing frame, socket side (both versions)	
4	614.090.001.304.000	Centerpiece for spindle without coding	
4	614.090.001.304.010	Centerpiece with coding	

ODU-MAC® **Blue-Line**

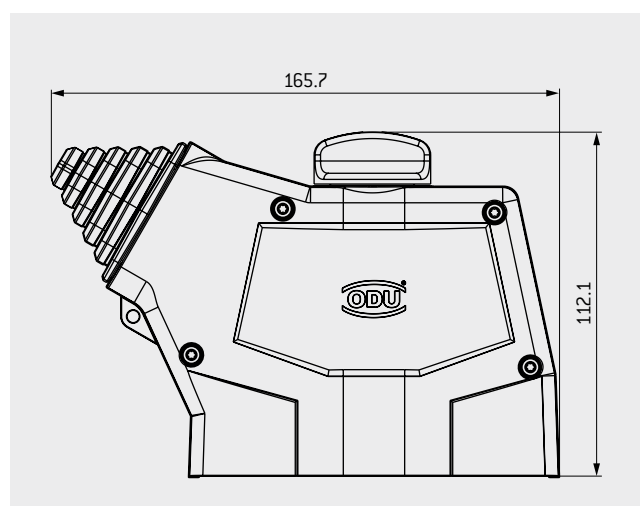
RAPID PLASTIC HOUSING

Half-shell principle with individually adjustable side cable outlet.

SPINDLE LOCKING




50% TIME SAVINGS



TECHNICAL DATA

Color of housing	Black (RAL 9005), White on request
Material	Plastic PC-Lexan, UL 94-V0
Protection class	IP 4X
Operating temperature	–40 °C to +125 °C
Grommet	Silicone (RAL 7035), UL 94-V0
Number of locking cycles	See explanation in main catalog
Coding	For spindle coding see main catalog (6 options)

Size	Part number	Description	Cable entry 	Part number protective cover (see page 16)
4	656.563.012.008.000	RAPID housing	max. 32 × 42 mm	656.563.012.018.000
4	635.093.011.200.000	Spindle locking 270° without coding		
4	635.093.011.200.003	Spindle locking 360° without coding		
4	635.093.011.200.010	Spindle locking 270° with coding		
4	635.093.011.200.013	Spindle locking 360° with coding		
4	631.193.000.600.001	Case frame, pin side		

ODU-MAC® **Blue-Line**

RAPID RECEPTACLE VERSIONS

For mounting on your device or as a recessed plastic design.

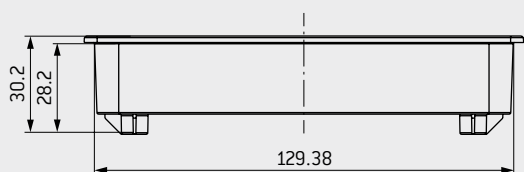
SPINDLE LOCKING



A RECESSED ASSEMBLY OF THE SOCKET FRAME
IN ASSEMBLY WALL



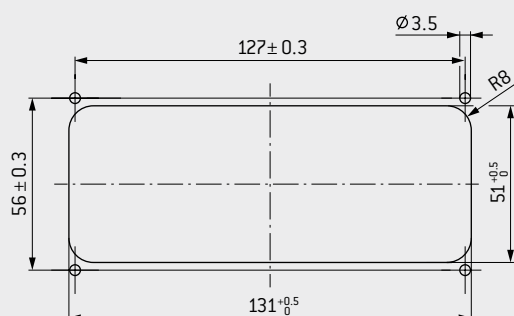
B DIRECT ASSEMBLY OF THE SOCKET FRAME
ON ASSEMBLY WALL



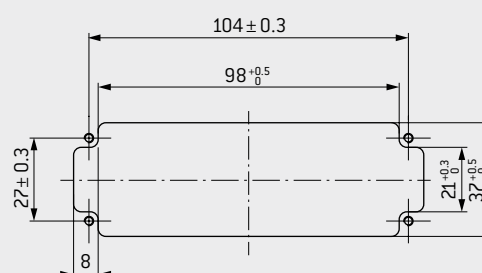
TECHNICAL DATA

Color of housing (recessed type)	Black (RAL 9005), White on request
Material	Plastic PC-Lexan, UL 94-V0
Protection class	IP 4X
Operating temperature	-40 °C to +125 °C

PANEL CUT-OUT A: RECESSED TYPE



PANEL CUT-OUT B: DIRECT ASSEMBLY



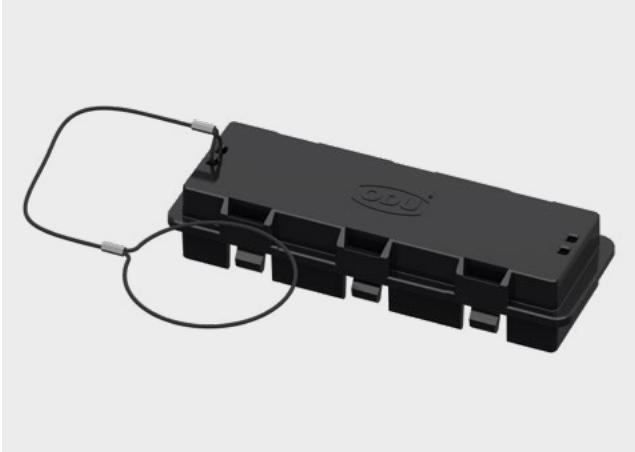
Size	Part number	Description	Part number protective cover [see page 16]
4	656.563.001.008.000	Recessed type receptacle, version A	656.563.011.018.000
4	630.193.000.600.000	Housing frame, socket side (both versions)	
4	634.090.001.304.000	Centerpiece for spindle without coding	
4	634.090.001.304.010	Centerpiece with coding	

PLASTIC PROTECTIVE COVER

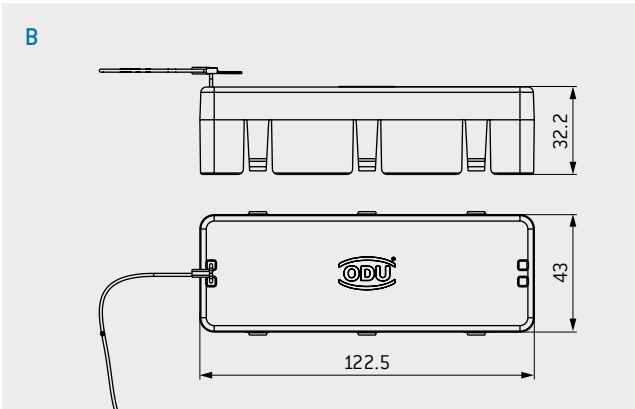
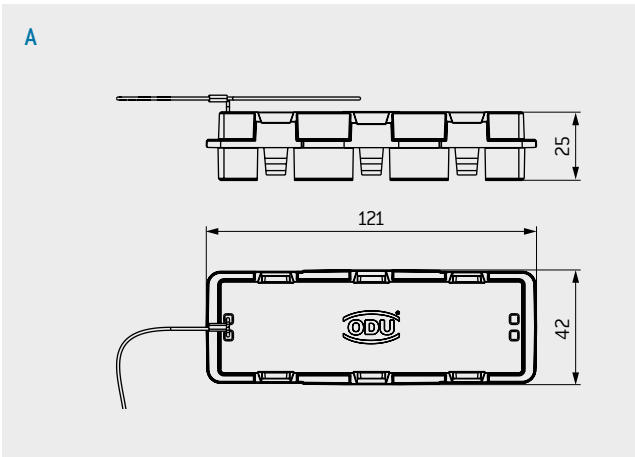
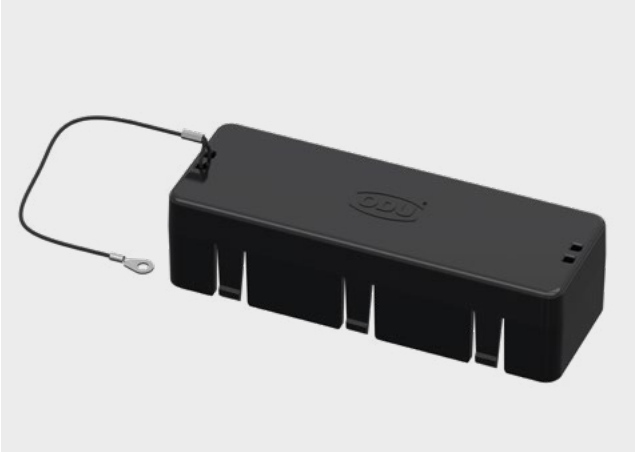


For ODU-MAC® RAPID housing and recessed type receptacle.

HOUSING A



RECESSED TYPE RECEPTACLE B



TECHNICAL DATA

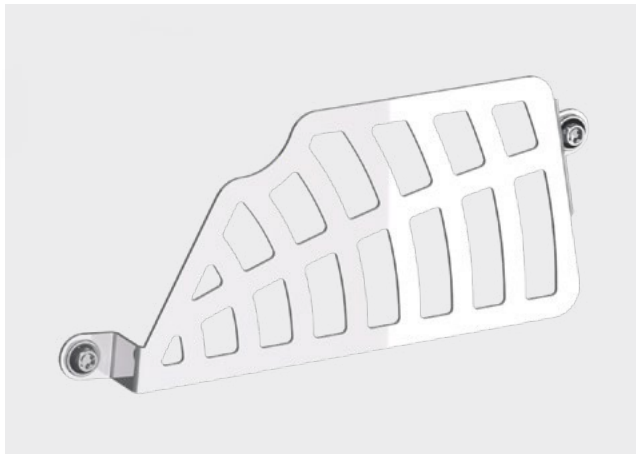
Color of housing	Black (RAL 9005) White on request
Material	Plastic PC-Lexan, UL 94-V0
Protection class	IP 4X
Operating temperature	-40 °C to +125 °C

Size	Part number A Protective cover for housing	Part number B Protective cover for recessed type receptacle	Lanyard length A mm	Lanyard length B mm
4	656.563.012.018.000	656.563.011.018.000	300	150

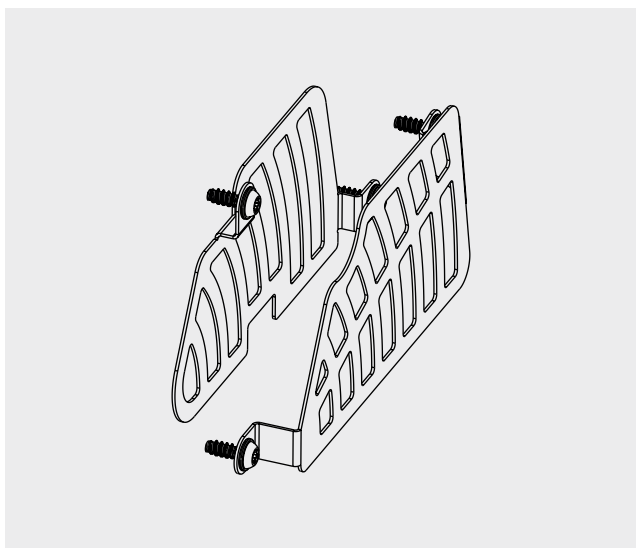
STRAIN RELIEF SET



For ODU-MAC® RAPID housing. The option for bundling and additional strain relief of single strands.



Optional lattice plates for strand bundling can also be retrofitted.



TECHNICAL DATA

Material Stainless steel
Operating temperature -40 °C to +125 °C

Size	Part number	Scope of supply
4	656.563.002.050.000	2 × strain relief plate including fixing screws 4 × S3 × 13.5 TX10

THE NEW ODU-MAC® Blue-Line PUSH-LOCK HOOD

available
from spring
2019

To follow the trend of miniaturization in combination with intuitive handling, a new solution will be available from spring 2019. We will offer a compact, sealed housing with push-pull locking based on the ODU-MAC® Blue-Line. In terms of ergonomics, modularity and user-friendliness, it is in no way inferior to its “big brother” with spindle locking. Seven units can be custom-fitted with hybrid connector faces with protection class IP 67.



- + Easy and secure Push-Pull locking
- + 7 units
- + Modules: Signal, power, coax, compressed air and fluid, data rates
- + > 5,000 mating cycles
- + Protection class IP 67
- + M25 cable outlet
- + Protective covers

EXPANDED MODULE RANGE FOR THE ODU-MAC® **Blue-Line**

The modular versatility of the ODU-MAC® product lines enables a huge number of transmission types to be individually combined within one hybrid interface. In order to meet future requirements, we are constantly expanding our module portfolio.

HIGH CURRENT UP TO 225 A¹

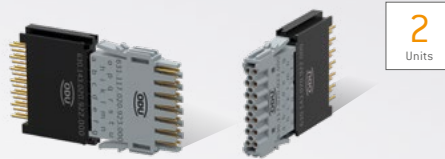


8
Units

+ 1 contacts / Contact Ø: 12 mm

- Operating voltage² 2,500 V
- Rated impulse voltage² 10,000 V
- Max. continuous current¹ 225 A at 50 mm²
- Mating cycles min. 10,000

PCB TERMINATION MODULE



2
Units

+ 20 contacts / Contact Ø: 0.7 mm

- Operating voltage² 250 V
- Rated impulse voltage² 2,500 V
- Max. continuous current¹ 7 A
- Mating cycles min. 10,000

SHIELDED IMPLEMENTATION / COMBI-MODULE



6
Units

USB® 2.0³, USB® 3.1 Gen1³, FireWire®³, Ethernet³

+ 2 contacts / High-Speed & Coax

- Selected inserts are suitable and qualified for data rates up to 5 Gbit/s
- Coax 50 Ω/4 GHz or 75 Ω/2.2 GHz
- Mating cycles min. 10,000



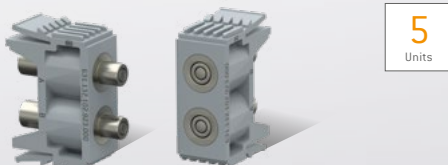
6
Units

USB® 2.0³, USB® 3.1 Gen1³, FireWire®³, Ethernet³

+ 2 contacts / High-Speed & Compressed Air

- Selected inserts are suitable and qualified for data rates up to 5 Gbit/s
- Compressed air 12 bar
- Mating cycles min. 10,000

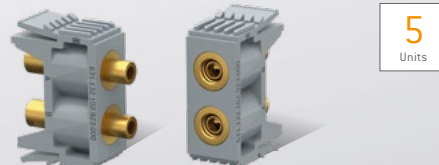
PNEUMATIC AND FLUID MODEL



5
Units

+ 2 contacts / Fluid

- 10 bar
- Tube termination M5 for Push-in
- Mating cycles min. 10,000



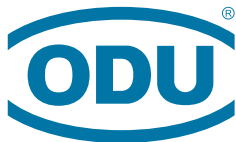
5
Units

+ 2 contacts / Compressed Air

- 20 bar
- Tube termination M5 for Push-in
- Mating cycles min. 10,000

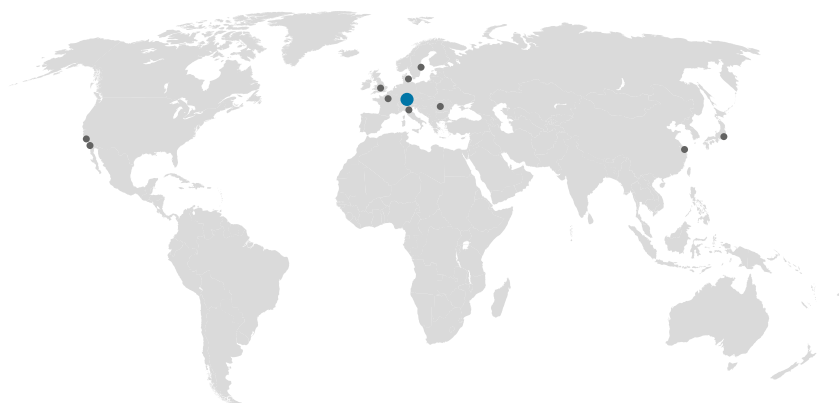
¹ Definition max. continuous current see main catalog ODU-MAC® Blue-Line. ² Acc. to IEC 60664-1:2007 [VDE 0110-1:2008] for degree of pollution 2.

³ These ODU specific connectors can transmit common data transmission protocols such as USB® 2.0, USB® 3.1 Gen1, FireWire® and Ethernet, but they are not USB®, FireWire®- and Ethernet-standard connectors.



A PERFECT ALLIANCE.

ODU GROUP WORLDWIDE



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