NEW PRODUCTS
ODU-MAC®
Compact Modular Connector System

AUTOMATIC DOCKING
MANUAL MATING
MODULES
HOUSING
FRAME

NEW
2018/2019
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

**ODU-MAC® FRAME**
ODU-MAC® S+ (SPECIAL)  

**MODULES**
PE-MODULE 1 CONTACT  
MODULE 1 CONTACT, FLUID MODEL

**HOUSING**
ODU-MAC® RAPID PLASTIC HOUSING  
ODU-MAC® PUSH-LOCK HOOD

**MODULES**
EXPANDED MODULE RANGE
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.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin frame</td>
<td>611.750.0____600.000</td>
</tr>
<tr>
<td>Socket frame</td>
<td>610.750.0____600.000</td>
</tr>
</tbody>
</table>

L = Number of units × 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)

GROUNDBLING KIT FOR S+ SOCKET FRAME

GROUNDBLING KIT MOUNTED

GROUNDBLING KIT FOR S+ PIN FRAME

GROUNDBLING KIT MOUNTED

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.

Part number | Connection threads
-------------|------------------
190.270.001.000.000 | M4

Max. 6 mm² lug connection for PE transmission.

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.

Part number | Connection threads
-------------|------------------
190.270.002.000.000 | M4

Max. 6 mm² lug connection for PE transmission.

CONTACT RESISTANCE COMPLIANT WITH < 0.1 Ω STANDARD.
PE-MODULE 1 CONTACT

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

Contact diameter: 10 mm
Mating cycles\(^1\): minimum 10,000
Conductor cross-section: 10/16/25 mm\(^2\)

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**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total mating force (average)</td>
<td>33 N / Module</td>
</tr>
<tr>
<td>Total sliding force (average)</td>
<td>24 N / Module</td>
</tr>
<tr>
<td>Contact diameter</td>
<td>10 mm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>−40 °C to +125 °C</td>
</tr>
<tr>
<td>Mating cycles</td>
<td>minimum 10,000</td>
</tr>
</tbody>
</table>

**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 mm\(^2\) is possible. This relationship is explained via the following table:

<table>
<thead>
<tr>
<th>Nominal cross-section of the current-carrying conductor (mm(^2))</th>
<th>Minimum cross-section of the protective conductor in accordance with DIN EN 61984:2009-11 (mm(^2))</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>16, 25, 35</td>
<td>16</td>
</tr>
<tr>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

\(^1\) 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.
**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 0.1 Ω required by the standard is easily achieved.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
<th>Conductor cross-section</th>
<th>Nominal current</th>
<th>Surge current</th>
<th>Contact resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE-module/pin</td>
<td>181.886.100.200.000</td>
<td>25</td>
<td>125</td>
<td>&gt; 20</td>
<td>0.1</td>
</tr>
<tr>
<td>PE-module/socket</td>
<td>178.886.100.201.000</td>
<td>16</td>
<td>90</td>
<td>&gt; 20</td>
<td>0.1</td>
</tr>
<tr>
<td>PE-module/pin</td>
<td>181.885.100.200.000</td>
<td>10</td>
<td>65</td>
<td>&gt; 20</td>
<td>0.1</td>
</tr>
<tr>
<td>PE-module/socket</td>
<td>178.885.100.201.000</td>
<td>10</td>
<td>65</td>
<td>&gt; 20</td>
<td>0.1</td>
</tr>
<tr>
<td>PE-module/pin</td>
<td>181.884.100.200.000</td>
<td>10</td>
<td>65</td>
<td>&gt; 20</td>
<td>0.1</td>
</tr>
<tr>
<td>PE-module/socket</td>
<td>178.884.100.201.000</td>
<td>10</td>
<td>65</td>
<td>&gt; 20</td>
<td>0.1</td>
</tr>
</tbody>
</table>

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 cycles\(^1\): 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 O\(_2\) model\(^2\).
- 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.

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 minimum 100,000

Materials

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

FLOW RATE DIAGRAM AIR

FLOW RATE DIAGRAM WATER

The flow diagram refers to the blocking variant with a maximum gap between socket and pin piece of \(\leq 0.5\) 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.

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
<th>Termination</th>
<th>Outer diameter of tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug sleeve (shut-off)</td>
<td>196.050.001.380.000</td>
<td>G1/4</td>
<td>see termination accessories on p. 10</td>
</tr>
<tr>
<td>Coupling plug (shut-off)</td>
<td>196.050.002.380.000</td>
<td>G1/4</td>
<td></td>
</tr>
</tbody>
</table>

Module 1 contact

Insulator 611.177:101:923:000
## FLUID MODEL G1/4

### TERMINATION TYPE PUSH-IN

**Push-in fitting**

**L connection**

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
<th>Dim. A</th>
<th>D5 Ø</th>
<th>L1</th>
<th>L2</th>
<th>Weight</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODU-MAC® Push-in fitting G1/4</td>
<td>945.000.001.000.322</td>
<td>6</td>
<td>16</td>
<td>19.5</td>
<td>6.5</td>
<td>12.7</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>945.000.001.000.323</td>
<td>8</td>
<td>16</td>
<td>21.5</td>
<td>6.5</td>
<td>13.6</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>945.000.001.000.324</td>
<td>10</td>
<td>16</td>
<td>27.5</td>
<td>6.5</td>
<td>17.4</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>945.000.001.000.325</td>
<td>12</td>
<td>16</td>
<td>28.5</td>
<td>6.5</td>
<td>26.2</td>
<td>•</td>
</tr>
</tbody>
</table>

### 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

### Push-in fitting L connection Push-in, Push-in G1/4

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
<th>Dim. A</th>
<th>D5 Ø</th>
<th>L1</th>
<th>H1</th>
<th>H2</th>
<th>Weight</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>945.000.001.000.318</td>
<td>6</td>
<td>12</td>
<td>22</td>
<td>21.5</td>
<td>6.5</td>
<td>21.8</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>945.000.001.000.319</td>
<td>8</td>
<td>14</td>
<td>22.5</td>
<td>21.5</td>
<td>6.5</td>
<td>25.3</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>945.000.001.000.320</td>
<td>10</td>
<td>16</td>
<td>26</td>
<td>22</td>
<td>6.5</td>
<td>34</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>945.000.001.000.321</td>
<td>12</td>
<td>19</td>
<td>28.5</td>
<td>25.5</td>
<td>6.5</td>
<td>58.5</td>
<td>•</td>
</tr>
</tbody>
</table>

- Standard | ¹ On request | ² Not possible

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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

compressed air valve example

tube
ODU-MAC®/white-Line®
RAPID PLASTIC HOUSING
Half-shell principle with individually adjustable side cable outlet.

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)

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number</th>
<th>Description</th>
<th>Cable entry</th>
<th>Part number protective cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>656.563.012.008.000</td>
<td>RAPID housing</td>
<td>max. 32 × 42 mm</td>
<td>656.563.012.018.000</td>
</tr>
<tr>
<td>4</td>
<td>615.093.021.200.003</td>
<td>Spindle locking 360° without coding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>615.093.021.200.013</td>
<td>Spindle locking 360° with coding, see catalog</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>611.193.004.600.000</td>
<td>Case frame, pin side</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**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: 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**

---

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number</th>
<th>Description</th>
<th>Part number protective cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>656.563.001.008.000</td>
<td>Recessed type receptacle, version A</td>
<td>656.563.011.018.000</td>
</tr>
<tr>
<td>4</td>
<td>610.193.000.600.000</td>
<td>Housing frame, socket side (both versions)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>614.090.001.304.000</td>
<td>Centerpiece for spindle without coding</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>614.090.001.304.010</td>
<td>Centerpiece with coding</td>
<td></td>
</tr>
</tbody>
</table>
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)

Table of Contents

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number</th>
<th>Description</th>
<th>Cable entry</th>
<th>Part number protective cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>656.563.012.008.000</td>
<td>RAPID housing</td>
<td>max. 32 x 42 mm</td>
<td>656.563.012.018.000</td>
</tr>
<tr>
<td>4</td>
<td>635.093.011.200.000</td>
<td>Spindle locking 270° without coding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>635.093.011.200.003</td>
<td>Spindle locking 360° without coding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>635.093.011.200.010</td>
<td>Spindle locking 270° with coding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>635.093.011.200.013</td>
<td>Spindle locking 360° with coding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>631.193.000.600.001</td>
<td>Case frame, pin side</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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: Black (RAL 9005), (recessed type) White on request
Material: Plastic PC-Lexan, UL 94-V0
Protection class: IP 4X
Operating temperature: −40 °C to +125 °C

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number</th>
<th>Description</th>
<th>Part number protective cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>656.563.001.008.000</td>
<td>Recessed type receptacle, version A</td>
<td>656.563.011.018.000</td>
</tr>
<tr>
<td>4</td>
<td>630.193.000.600.000</td>
<td>Housing frame, socket side (both versions)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>634.090.001.304.000</td>
<td>Centerpiece for spindle without coding</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>634.090.001.304.010</td>
<td>Centerpiece with coding</td>
<td></td>
</tr>
</tbody>
</table>

Table of Contents
PLASTIC PROTECTIVE COVER

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

### 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

### Table

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number A Protective cover for housing</th>
<th>Part number B Protective cover for recessed type receptacle</th>
<th>Lanyard length A</th>
<th>Lanyard length B</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>656.563.012.018.000</td>
<td>656.563.011.018.000</td>
<td>300</td>
<td>150</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Material</th>
<th>Stainless steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>−40 °C to +125 °C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number</th>
<th>Scope of supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>656.563.002.050.000</td>
<td>2 × strain relief plate including fixing screws</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 × 53 × 13.5 TX10</td>
</tr>
</tbody>
</table>
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®

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 A

1 contacts / Contact ∅: 12 mm
- Operating voltage2
- Rated impulse voltage2
- Max. continuous current1
- Mating cycles

20 contacts / Contact ∅: 0.7 mm
- Operating voltage2
- Rated impulse voltage2
- Max. continuous current1
- Mating cycles

PCB TERMINATION MODULE

SHIELDED IMPLEMENTATION / COMBI-MODULE

USB® 2.01, USB® 3.1 Gen1, FireWire®1, Ethernet1

2 contacts / High-Speed & Coax
- Selected inserts are suitable and qualified for data rates up to 5 Gbit/s
- Coax
- Mating cycles

USB® 2.01, USB® 3.1 Gen1, FireWire®1, Ethernet1

2 contacts / High-Speed & Compressed Air
- Selected inserts are suitable and qualified for data rates up to 5 Gbit/s
- Compressed air
- Mating cycles

PNEUMATIC AND FLUID MODEL

2 contacts / Fluid
- 10 bar
- Tube termination
- Mating cycles

2 contacts / Compressed Air
- 20 bar
- Tube termination
- Mating cycles

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.
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Further information and specialized representatives can be found at:
www.odu-connectors.com/contact

PRODUCTION AND LOGISTICS SITES
Germany Otto Dunkel GmbH
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