NEW PRODUCTS
ODU-MAC®

Compact Modular Connector System
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

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HOUSING
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ODU-MAC® S+ (SPECIAL)

The new standard for docking tasks with optional PE transmission.

Description | Part number
---|---
Pin frame | 611.750.000–600.000
Socket frame | 610.750.000–600.000

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

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.

NOT COMPATIBLE WITH ODU-MAC® S FRAME.

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

PART NUMBER | CONNECTION THREADS
---|---
190.270.001.000.000 | M4

Max. 6 mm² lug connection for PE transmission.

Non-magnetic version available upon request.

CONTACT RESISTANCE COMPLIANT WITH < 0.1Ω STANDARD.

PART NUMBER | CONNECTION THREADS
---|---
190.270.002.000.000 | M4

Max. 6 mm² lug connection for PE transmission.

Non-magnetic version available upon request.
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\(^\text{+}\) P+ (Power) frame (see main catalog).
- Comp 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 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.

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**ODU LAMTAC\(^\text{+}\) (CONTACTS WITH LAMELLA TECHNOLOGY)**

In comparison to the ODU SPRINGTAC\(^\text{+}\) contact, ODU LAMTAC\(^\text{+}\) 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(^2) mm(^2)</th>
<th>Nominal current(^2) A</th>
<th>Surge current(^2) kA</th>
<th>Contact resistance(^2) mΩ</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>
</tbody>
</table>

\(^2\) Extra fine wire acc. to IEC 60228:2004 (VDE 0295:2005; class 5).

---

\(^1\) 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).

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 II 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.

TECHNICAL DATA

<table>
<thead>
<tr>
<th>Mechanical data</th>
<th>-0.95 to 25 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid max. operating pressure</td>
<td>G1/4 inner thread</td>
</tr>
<tr>
<td>Tube termination</td>
<td>push-in connections</td>
</tr>
<tr>
<td>Total mating force (average)</td>
<td>60 N / Module</td>
</tr>
<tr>
<td>Total sliding force (average)</td>
<td>G1/4 / Module</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to +90°C</td>
</tr>
<tr>
<td>Mating cycles¹</td>
<td>minimum 100,000</td>
</tr>
</tbody>
</table>

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

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

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

REMOTION TOOL

Removal of the fully assembled coupling (including cable).
PART NUMBER: 087.196.050.000.000

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

For accessories see page 10

¹ Specified mating cycles possible with regular service intervals
² Not suitable for mixtures containing more than 25% oxygen content or explosive gases.
**TERMINATION TYPE PUSH-IN**

Push-in fitting

**L-connection**

**ACCESSORIES**

**FLUID MODEL G1/4**

**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

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
<th>Dim. A</th>
<th>D5</th>
<th>L1</th>
<th>L2</th>
<th>Weight</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer diameter of tube</td>
<td></td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td></td>
<td></td>
</tr>
<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>

**ODU-MAC® Push-in fitting G1/4**

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
<th>Dim. A</th>
<th>D5</th>
<th>L1</th>
<th>L2</th>
<th>Weight</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer diameter of tube</td>
<td></td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-connection Push-in, Push-in G1/4</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>
</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>
</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>
</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>
</tr>
</tbody>
</table>

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

**Mechanical data**
- Valid operating pressure (static): -0.95 to 16 bar
- Operating temperature: -20 °C to +70 °C
- Thread termination: G1/4

**Te**
**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)

**PANEL CUT-OUT A: RECESSED TYPE**

**PANEL CUT-OUT B: DIRECT ASSEMBLY**

**ODU-MAC® white-Line**

**RAPID RECEPTACLE VERSIONS**

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

**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**

**Size** | **Part number** | **Description** | **Cable entry** | **Part number protective cover**
--- | --- | --- | --- | ---
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 | | 
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 | | 

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13
ODU-MAC® Blue-Line

Rapid Plastic Housing

Half-shell principle with individually adjustable side cable outlet.

SPINDLE LOCKING

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 | 635.093.011.000.000 | Spindle locking 270° without coding |  | 
4 | 635.093.011.200.000 | 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 |  | 

Panel Cut-Out A: recessed type

Panel Cut-Out B: direct assembly

ODU-MAC® Blue-Line

Rapid Receptacle Versions

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

SPINDLE LOCKING

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 | 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) | 656.563.011.018.000
4 | 634.090.001.304.000 | Centerpiece for spindle without coding | 656.563.011.018.000
4 | 634.090.001.304.010 | Centerpiece with coding | 656.563.011.018.000
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 V-0
- Protection class: IP 4X
- Operating temperature: −40 °C to +125 °C

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number A</th>
<th>Part number B</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 mm</td>
<td>150 mm</td>
</tr>
</tbody>
</table>

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STRAIN RELIEF SET

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

**TECHNICAL DATA**
- Material: Stainless steel
- Operating temperature: −40 °C to +125 °C

<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 4 × S3 = 13.5 TR10</td>
</tr>
</tbody>
</table>
THE NEW ODU-MAC® Blue-Line
PUSH-LOCK HOOD

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.

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 A²

- 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 min. 10,000
  - Mating cycles

- 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

PCB TERMINATION MODULE

- 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

- USB® 2.0, USB® 3.1 Gen1, FireWire®, Ethernet
  - 2 contacts / High-Speed & Coax
    - Selected inserts are suitable and qualified for data rates up to 5 Gbit/s
    - Coax: 50 Ω at 4 GHz or 75 Ω at 2.2 GHz
    - Mating cycles min. 10,000

- USB® 2.0, USB® 3.1 Gen1, FireWire®, Ethernet
  - 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

- 2 contacts / Fluid
  - 10 bar
  - Tube termination M5 for Push-in min. 10,000
  - Mating cycles

- 2 contacts / Compressed Air
  - 20 bar
  - Tube termination M5 for Push-in min. 10,000
  - 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.

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

Available from spring 2019