ODU AMC®

Rugged miniature circular connector

PUSH-PULL
BREAK-AWAY
FEATURES

- Low weight and compact design
- Easy handling
- Watertight
- Blind mateable
- Robust
- High data transmission
- EMC shielding
- Robust mechanical and optical coding
- Resist all kinds of extremes like dust, temperature, humidity, corrosion, radiation and shock vibration

APPLICATIONS

- Communication systems (PTT, PRR)
- Rugged computers and hand-helds
- Power supply
- Unmanned systems
- Optical devices
- Nightvision systems
- Software defined radions
- Defence and security

Data transmission protocols

These ODU specific connectors can transmit common data transmission protocols such as HDMI®, USB® 2.0 and USB® 3.2 Gen1x1, but they are not HDMI®- and USB®-standard connectors.

All shown connectors are according to IEC 61984-2008 [VDE 0627:2009], connectors without breaking capacity [COC].

ODU AMC® is UL-listed under file E110586.

Issue: 2020-03
# TABLE OF CONTENTS

## THE ODU CORPORATE GROUP

### PRODUCT INFORMATION

- ODU AMC® introduction .......................................................... 11
- ODU AMC® product features .................................................. 12
- ODU AMC® product range and solutions ......................... 13
- Related products ................................................................. 13
- ODU AMC® locking mechanisms .................................... 14

### CONFIGURATION GUIDELINE

### AMC®

- Summary ........................................................................ 23
- Push-Pull plug .................................................................. 24
- Break-Away plug .............................................................. 26
- Panel plug rear mount ...................................................... 27
- In-line receptacle ............................................................. 28
- Receptacles .................................................................... 29
- Coding possibilities ........................................................ 30
- Housing material ............................................................ 31
- Contact configurations and PCB layouts ................. 32
- Protection caps ............................................................... 33

## TECHNICAL INFORMATION

- Technical data ODU AMC® .............................................. 64
- Protection ODU AMC® .................................................. 66
- International protection classes .................................... 67
- Turned contact ................................................................ 68
- Current load – of turned contacts ............................... 69
- Operating voltage .......................................................... 70
- Conversions / AWG ......................................................... 72
- Technical terms ............................................................. 73

For assembly instructions please refer to our website: www.odu-connectors.com/downloads
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 to achieve superb results. This goal drives our work. Perfect connections that inspire and deliver on the promises.

ODU GROUP OVERVIEW

- Almost 80 years of experience in connector technology
- Over 2,300 employees worldwide
- Sales subsidiaries in China, Denmark, France, Germany, Hong Kong, Italy, Japan, Korea, Romania, Sweden, 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 2020

CERTIFICATES & APPROVALS

- ISO 9001
- IATF 16949
- ISO 13485
- ISO 14001
- ISO 50001
- Wide range of UL, CSA, VG and VDE approvals
- UL Wiring Harnesses certified

For a complete list of our certifications and approvals, please visit our website.
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 to achieve superb results. This goal drives our work.

Perfect connections that inspire and deliver on the promises.

WORLDWIDE CUSTOMER PROXIMITY

- ISO 9001
- IATF 16949
- ISO 13485
- ISO 14001
- ISO 50001
- Wide range of UL, CSA, VG and VDE approvals

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

ODU Scandinavia AB
ODU Denmark ApS
ODU Mexico
Manufacturing S. de R.L. de C.V.

Headquarters
ODU GmbH & Co. KG
Otto Dunkel GmbH

ODU-USA Inc.
ODU North American Logistics Inc.

ODU-UK Ltd.
ODU Italia S.R.L.
ODU-France SARL
ODU Romania Manufacturing SRL

ODU (Shanghai) International Trading Co., Ltd.
ODU (Shanghai) Connectors Manufacturing Co., Ltd.
ODU Korea Inc.
ODU Japan K.K.
ODU (HK) Trading Co., Ltd.

As of February 2020

A PERFECT ALLIANCE
CONNECTIONS THAT LIVE UP TO ANY REQUIREMENT

ELECTRICAL CONTACTS

- Versatile contact technologies
- Outstanding reliability and durability
- Current-carrying capacity of up to 2,400 A
- Rugged and universal contact systems
- Stamping technology for customer-specific high volume solutions
- Very high vibration resistance
- Low, stable contact resistance

CIRCULAR CONNECTORS

- Circular connector series in robust metal or plastic housing
- Contacts for soldering, crimping and PCB termination
- Different locking systems available: Push-Pull and Screw-Locking options or Break-Away function for quick release
- 2 up to 55 contacts
- Protection classes IP50 to IP69
- Autoclavable for medical applications
- Hybrid inserts for combined transmission
- Including cable assembly – system solution from one source

CABLE ASSEMBLY

- Complete system solutions from one source based on years of expertise
- State-of-the-art production facilities with 100 % end testing
- Cable assembly available for ODU products
- Overmolding in silicone, hot-melt and high-pressure procedures
- Customer-specific labeling and cable printing
- Wide range of standard cables and accessories available
- Prototype, small series and high volume production
- Rapid prototyping

APPLICATION AND CUSTOMER-SPECIFIC SOLUTIONS

- Contacts, connectors and cable 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
- Short development and production paths
CONNECTIONS THAT LIVE UP TO ANY REQUIREMENT

HEAVY DUTY CONNECTORS
• Extremely durable even under extreme / harsh environments
• High vibration resistance
• Up to 400 A (higher currents upon request)

PRINTED CIRCUIT BOARDS CONNECTORS
• Maximum flexibility in application designs
• High resilience and outstanding quality
• Including cable assembly – system solution from one source

MODULAR CONNECTORS
• Application-specific hybrid interface
• For manual mating and automatic docking
• Flexible modular construction and highest packing density
• For the transmission of signals, power, high current, high voltage, HF signals (coax), media, high-speed data or fiber optics
• Variety of locking options available
• Mating cycles scalable as required from 10,000 to over 100,000 (1 million)
• Including cable assembly – system solution from one source

MASS INTERCONNECT SOLUTIONS
• For testing printed circuit boards (PCBs) and electronically assembled units
• Innovative engagement option: electromechanical version
• 8 tensioning points stop the frame distorting
• Very high flexibility thanks to ODU-MAC® modules
• Adapter frame (ITA) with tolerance compensation
• Including cable assembly – system solution from one source

CIRCULAR CONNECTORS
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• Rapid prototyping

CABLE ASSEMBLY
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 our products also stand for dynamics, reliability, safety, precision, efficiency and sustainability.
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 impressive, custom-fit final end products.

MORE THAN A CONNECTION

Contacts, connectors and cable assembly system solutions meeting the most demanding technical market requirements – ODU’s connector solutions and value-added services are characterized by their exclusive focus on meeting the customer’s needs.

- Precise implementation of application-specific requirements regarding design, functionality, cost and exclusivity
- Modified connector solutions derived from standard products
- One-to-one local expertise and fair, friendly consulting
- Short development and production paths

DEVELOPMENT OF CUSTOM SOLUTIONS

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 our products also stand for dynamics, reliability, safety, precision, efficiency and sustainability.
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ODU AMC® introduction .......................................................... 12
ODU AMC® product features .................................................. 12
ODU AMC® product range and solutions ................................. 13
Related products .................................................................. 13
ODU AMC® locking mechanisms ........................................... 14
ODU AMC® INTRODUCTION
A CONNECTOR THAT YOU CAN DEPEND ON

ODU AMC® is a rugged miniature connector solution for extreme environments. The connectors are waterproof when mated and unmated, offer robust mechanical coding with a visual indicator, and are EMI shielded.

The connectors have been designed and tested to survive many of the factors detrimental to the performance of connectors in harsh environments, including: sand and dust, extreme temperatures, humidity, corrosion, solar radiation, shock, vibration and torque.

Whether in extreme environments or under high mechanical stress, ODU connectors ensure reliable electrical communication, even in the most demanding conditions.

The ODU AMC® is available in a wide range of sizes and contact inserts. You can choose between four versions — Push-Pull, Break-Away, Easy-Clean and High-Density.

ODU AMC® PRODUCT FEATURES

VARIOUS SIZES AND CONFIGURATIONS AVAILABLE

• 6 standard connector shell sizes
• Plug outer diameter 14 mm to 33 mm
• 1 to 55 contacts
• High-speed data transmission inserts available
• International protection class IP6K8K and IP6K9K

MATERIALS AND APPLICABILITY

The ODU AMC® connector series uses PEEK as the insulator material.

The housings are made of aluminum, and plated with ruthenium over nickel (see page 65 for more information).

Operating temperature range: −51 °C to +125 °C. This rugged and versatile connector series is ideal for defense & security applications as well as industrial electronics.

COMPLETE SYSTEM SOLUTION

Every connection has a unique cable requirement. Make no compromise when it comes to the quality of the complete interconnect system. ODU gives you the complete system solution from one source, without the need for an intermediary supplier.

Services include:

• 100 % outgoing inspection
• EN ISO 14644-1:2015 clean room assembly available
• Factory-automated equipment and processes (cutting, stripping, etc.)
• Low- and high-pressure overmolding
• Ultrasonic welding
• EMI shielded enclosure assembly
• Custom labeling
• Various potting options for sealed systems
• Overmolded cable transitions (1-to-2, 1-to-3, etc.)
ODU AMC® CONNECTORS
PRODUCT RANGE AND SOLUTIONS

### Related Products in the ODU Circular Connector Series

- ODU AMC® Easy-Clean
  - Pogo pin contacts can be easily cleaned and are resilient against damage caused by dirt and debris ingress
  - Break-Away function
  - International protection class IP6K8 and IP6K9K

- ODU AMC® High-Density
  - Small and compact design
  - High-contact density
  - High-speed data transmission capable
  - Break-Away function
  - International protection class IP6K8
  - With dual-locking option

- ODU Threaded Connector
  - High reliability for harsh environments
  - Screw locking with ratchet mechanism half turn to fully mate
  - High vibration resistant
  - International protection class IP6K8
  - More mating cycles than most MIL spec. connectors

- ODU Mini-Snap™
  - Circular Push-Pull connector with metal housing
  - Wide variety of contact configurations and combinations
  - International protection class IP50 and IP68

---

1 International protection class in mated condition
ODU offers you high-quality connectors and comprehensive service for the complete assembly. From connectors to submersible overmolded cable assemblies, we provide the complete system as a one-stop solution.

**PUSH-PULL LOCKING**

The proven Push-Pull locking principle ensures reliable mechanical mating and demating in less than a second. During the mating process, locking tabs on the plug align with corresponding grooves in the receptacle and form a robust, resilient connection between shell bodies.

The connection can only be disengaged by manually actuating (pulling back) on the outer sleeve of the plug connector. Pulling on the cable has no impact on the connector sleeve, and therefore no impact on the locking mechanism. Consequently, once the connection is made, it will not be unintentionally disengaged pulling on the cable.

**BREAK-AWAY FUNCTION**

The Break-Away function allows connectors to be mated and unmated in fractions of a second, just like in the Push-Pull locking mechanism described above. As a safety measure, features in the connector allow the plug and receptacle to separate when the connector is in axial tension.

During the mating process, locking tabs on the plug align with corresponding grooves in the receptacle, but the geometry of the locking tabs is such that the connectors will separate when the specific retention force of the mechanism is exceeded. As a result, disconnection of the system can be triggered by pulling on the plug connector, the receptacle connector or cables attached to either.
ODU offers you high-quality connectors and comprehensive service for the complete assembly. From connectors to watertight potting, we provide the complete system from a single source.

BIT BY BIT TO THE PERFECT CONNECTION

Table of contents
SAMPLE CONFIGURATION 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.

Push-Pull plug / size 2 / AMC® Series Y / coding A / connector plug housing ruthenium over aluminium / insulator PEEK / 19 contacts / pin (solder) Au / contact diameter 0.7mm / termination cross section AWG 22

STEP 1: SERIES (SEE POSITION 4)

STEP 2: TYPE/STYLE (SEE POSITIONS 1, 2, 16, 17 AND 19)

PAGE 26 – 32

STEP 3: SIZE (SEE POSITION 3)

PAGE 34 – 55

STEP 4: CODING (SEE POSITION 5)

PAGE 33

STEP 5: HOUSING MATERIAL (SEE POSITION 6)

PAGE 33

Table of contents
YOUR WAY TO AN INDIVIDUAL CONNECTION:
HOW TO CONFIGURE WITH THE PART NUMBER KEY

This shows you how ODU’s part number key is composed. In the first part of the configuration, select the connector plug housing (such as style and size) of the connector. In the middle part of the part number key, you configure the contact insert and then the cable entry.

**Type**
- A = Break-Away plug
- G = Receptacle/panel mounted plug
- K = In-line receptacle
- S = Push-Pull plug

**Material insulator**
- P = PEEK
- F = PTFE

**Style**
- 1 – 8, K, W

**Size**
- 0, 1, A, 2, 3, E

**Series**
- Y

**Coding**
- A, B, C, D

**Housing material**
- Ruthenium

**Contact insert**
- e.g. 18 contacts = 18

**Contact type/surface**

**Contact diameter/termination cross-section**
- 12, 13, 14

**Receptacle earthing tag**
- [GK, GB and GW]

---

1Other insulation materials on request.
STEP 6: 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 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

SOLDER (PIN)

PEEK

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

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

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

16 CONTACTS

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

SOLDER (PIN)

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

DIAMETER 0.7 mm

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

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

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

AWG 22
Table of contents

Summary ........................................................................................................................... 24
Push-Pull plug ................................................................................................................ 26
Break-Away plug .......................................................................................................... 27
Panel plug rear mount .................................................................................................. 28
In-line receptacle ......................................................................................................... 29
Receptacles ................................................................................................................... 30
Coding possibilities ...................................................................................................... 33
Housing Material ......................................................................................................... 33
Contact configuration and PCB layouts ....................................................................... 34
Protection caps ............................................................................................................. 56
ODU AMC® use pin and groove coding and additional to mechanical also optical color coding. These robust circular connectors can be configured in variety ways.

- Mechanical coding over pin and groove
- 1 to 55 contacts / high speed data transmission
- Up to 6 sizes
- Protection class IP6K8 and IP6K9K
- 5,000 mating cycles
- Contacts for solder and PCB termination
For assembly instructions please refer to our website:
www.odu-connectors.com/downloads
PUSH-PULL PLUG

STYLE 1

<table>
<thead>
<tr>
<th>Size</th>
<th>L1 (mm)</th>
<th>L2 (mm)</th>
<th>L3 (mm)</th>
<th>L4 (mm)</th>
<th>D1 (mm)</th>
<th>D2 (mm)</th>
<th>D3 (mm)</th>
<th>AF A</th>
<th>Max Ø-cable (mm)</th>
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</thead>
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<td>1.5</td>
<td>21.4</td>
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<td>30.0</td>
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</table>

TECHNICAL DATA

- Technical data see page 64
- Contact configuration see page 34
- Cable assembly information see ODU instruction 010.645.001.000.002 (available at www.odu-connectors.com/downloads/assembly-instructions)

1 Based on cable with one braided shield
2 Delivered with Band-It Band instead of crimp barrel; no color coding available
BREAKE-WAY PLUG

STYLE 1

<table>
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<tr>
<th>Size</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>D1</th>
<th>AF A</th>
<th>Max Ø-cable</th>
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- Contact configuration see page 34
- Cable assembly information see ODU instruction 010.645.001.000.004 (available at www.odu-connectors.com/downloads/assembly-instructions)

Based on cable with one braided shield
TYPE AND STYLE

PANEL PLUG REAR MOUNT

STYLE W

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<th>D2</th>
<th>AF A</th>
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TECHNICAL DATA

- Technical data see page 64
- Contact configuration and PCB layout see page 34

NUTDRIVER FOR SLOTTED NUT

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Table of contents
IN-LINE RECEPTACLE

STYLE 1

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<th>L3 (mm)</th>
<th>L4 (mm)</th>
<th>D1 (mm)</th>
<th>D2 (mm)</th>
<th>AF A (mm)</th>
<th>Max Ø-cable* (mm)</th>
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* Based on cable with one braided shield
RECEPTACLE

STYLE K

For installation from rear of panel – low profile inside the device

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<th>X</th>
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<th>D2</th>
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<td>page 47</td>
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<td>18.9</td>
<td>17.9</td>
<td>13</td>
<td>14 x 1</td>
</tr>
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<td>3.0</td>
<td>page 49</td>
<td>4</td>
<td>20.8</td>
<td>21.9</td>
<td>15</td>
<td>16 x 1</td>
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</tbody>
</table>

NUTDRIVER FOR SLOTTED NUT

<table>
<thead>
<tr>
<th>Size</th>
<th>Number</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>700.098.001.000.000</td>
<td>1.0</td>
</tr>
<tr>
<td>1</td>
<td>701.098.002.000.000</td>
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<tr>
<td>1.5 (A)</td>
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</tr>
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<td>2</td>
<td>702.098.001.000.000</td>
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</table>

TECHNICAL DATA
• Technical data see page 64
• Contact configuration and PCB layout see page 34
RECEPTACLE

STYLE 6

<table>
<thead>
<tr>
<th>Size</th>
<th>L1 mm</th>
<th>L2 mm</th>
<th>L3 mm</th>
<th>X mm</th>
<th>D1 mm</th>
<th>D2 mm</th>
<th>D3 mm</th>
<th>AF A mm</th>
<th>AF B mm</th>
<th>M mm</th>
<th>Max. cable D mm</th>
<th>Panel cut out mm</th>
</tr>
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<td>0</td>
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</tr>
<tr>
<td>1</td>
<td>30.0</td>
<td>8.0</td>
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<td>11</td>
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<td>1.5</td>
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<td>17.9</td>
<td>15.9</td>
<td>13</td>
<td>12</td>
<td>14 x 1</td>
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<td>2</td>
<td>30.5</td>
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<td>4.0</td>
<td>3.0</td>
<td>20.8</td>
<td>21.9</td>
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<td>14</td>
<td>16 x 1</td>
<td>10.0</td>
<td>15.1</td>
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NUTDRIVER FOR SLOTTED NUT

<table>
<thead>
<tr>
<th>Size</th>
<th>Number</th>
<th>Torque Nm</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>1</td>
<td>701.098.002.000.000</td>
<td>3.0</td>
</tr>
<tr>
<td>1.5 (A)</td>
<td>701.098.002.000.000</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>702.098.001.000.000</td>
<td>4.0</td>
</tr>
</tbody>
</table>

TECHNICAL DATA
- Technical data see page 64
- Contact configuration and PCB layout see page 34

1 Based on cable with one braided shield

Table of contents

31
**STYLE 8**

For installation from rear of panel – low profile outside the device

<table>
<thead>
<tr>
<th>Size</th>
<th>L1 (mm)</th>
<th>L2 max. (mm)</th>
<th>L3 (mm)</th>
<th>L4 (mm)</th>
<th>X max. (mm)</th>
<th>D1 (mm)</th>
<th>D2 (mm)</th>
<th>D3 (mm)</th>
<th>AF A (mm)</th>
<th>M (mm)</th>
<th>Panel cut out AF (mm)</th>
<th>Panel cut out Ø (mm)</th>
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<tr>
<td>0</td>
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<td>17.9</td>
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<td>13</td>
<td>14 × 1</td>
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<td>8.0</td>
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<td>4.0</td>
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<td>3.0</td>
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<td>21.9</td>
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<td>16 × 1</td>
<td>15.1</td>
<td>16.1</td>
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<td>3</td>
<td>11.0</td>
<td>22.5</td>
<td>4.0</td>
<td>15.5</td>
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<td>18.1</td>
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<td>4.5</td>
<td>E</td>
<td>13.0</td>
<td>19.0</td>
<td>5.0</td>
<td>13.0</td>
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<td>37.5</td>
<td>27.0</td>
<td>27</td>
<td>30 × 1.5</td>
<td>27.1</td>
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**NUTDRIVER FOR SLOTTED NUT**

<table>
<thead>
<tr>
<th>Size</th>
<th>Number</th>
<th>Torque (Nm)</th>
</tr>
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<td>0</td>
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<td>701.098.002.000.000</td>
<td>3.0</td>
</tr>
<tr>
<td>1.5 (A)</td>
<td>701.098.002.000.000</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>702.098.001.000.000</td>
<td>4.0</td>
</tr>
<tr>
<td>3</td>
<td>703.098.001.000.000</td>
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**TECHNICAL DATA**

- Technical data see page 64
- Contact configuration and PCB layout see page 34

1 No color coding available
### Coding Possibilities

<table>
<thead>
<tr>
<th>Plug front view</th>
<th>Color coding</th>
<th>Color</th>
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<tbody>
<tr>
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<td></td>
<td>Light brown</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>Red</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>Blue</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>Green</td>
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</tbody>
</table>

*No color coding in size 4.5 (E)*

### Housing Material

<table>
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<tr>
<th>Housing material</th>
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<tbody>
<tr>
<td>R</td>
</tr>
<tr>
<td>Aluminium EN-6023 Ruthenium over electroless Ni</td>
</tr>
</tbody>
</table>

Table of contents: 33
## CONTACT CONFIGURATIONS

### SIZE 0 (2 POS. – 5 POS.)

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>Available connector styles</th>
<th>Contact type²</th>
<th>Part number key</th>
<th>Termination diameter</th>
<th>Contact to Test nomi-</th>
<th>Nominal</th>
<th>Termination</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 2</td>
<td>G8 – – K1 Socket</td>
<td>Solder⁴</td>
<td>W J G 0</td>
<td>0.9</td>
<td>10</td>
<td>1.200</td>
<td>0.400</td>
<td>0.85 22 0.38</td>
</tr>
<tr>
<td></td>
<td>S1 A1 – – Pin GW</td>
<td>Solder⁴</td>
<td>X J G 0</td>
<td>–</td>
<td>7</td>
<td>0.7</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>0 3</td>
<td>– – G6 K1 Socket</td>
<td>Solder⁴</td>
<td>W J G 0</td>
<td>0.9</td>
<td>10</td>
<td>1.200</td>
<td>0.400</td>
<td>0.85 22 0.38</td>
</tr>
<tr>
<td></td>
<td>– – – Print</td>
<td></td>
<td>U J G 0</td>
<td>–</td>
<td>7</td>
<td>0.7</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>0 4</td>
<td>G8 – – K1 Socket</td>
<td>Solder⁴</td>
<td>W F G 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85 22 0.38</td>
</tr>
<tr>
<td></td>
<td>– – – Print</td>
<td></td>
<td>U F G 0</td>
<td>–</td>
<td>5</td>
<td>0.5</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>0 5</td>
<td>– – – K1 Socket</td>
<td>Solder⁴</td>
<td>W F G 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85 22 0.38</td>
</tr>
<tr>
<td></td>
<td>– – A1 – – Pin GW</td>
<td>Solder⁴</td>
<td>X F G 0</td>
<td>–</td>
<td>7</td>
<td>0.5</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

1 Other contact configurations on request  
2 Other termination or reverse gender on request  
3 Derating factor see page 69  
4 SAE AS 13441.2004 method 3001.1  
5 Max. operating voltage at NN [sea level] acc. to SAE AS 13441.2004 method 3001.1  
6 Further information on page 70  
7 Other cross sections on request

### Table of contents

- 0 2
- 0 3
- 0 4
- 0 5

- O Y R – P
- – O 0 0
PCB LAYOUT PRINT CONTACTS
SIZE 0

<table>
<thead>
<tr>
<th>View on termination area</th>
<th>Data transmission protocols</th>
<th>Number of contacts</th>
<th>Length earth tag and pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin side</td>
<td>Socket side</td>
<td></td>
<td>GB</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>2 pos.</td>
<td>3.5</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>3 pos.</td>
<td>3.5</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>4 pos.</td>
<td>3.5</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>5 pos.</td>
<td>3.5</td>
</tr>
</tbody>
</table>

LENGTH EARTH TAG AND PIN

**GB**
- Earth tag: 3.5
- Pin X

**GK**
- Earth tag: 3.3
- Pin Y

**GW**
- Earth tag: 5.0
- Pin Z
# CONTACT CONFIGURATIONS

## SIZE 0 (7 POS. – 10 POS.)

<table>
<thead>
<tr>
<th>Number of contacts¹</th>
<th>Available connector styles</th>
<th>Contact type²</th>
<th>Part number key</th>
<th>Contact</th>
<th>Single contact nominal current³</th>
<th>Test voltage⁴</th>
<th>Nominal voltage⁴</th>
<th>Termination diameter</th>
<th>Termination cross section⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 7</td>
<td>G8 GK – – K1 – – Socket</td>
<td>Solder⁶</td>
<td>W C D 0</td>
<td>0.5</td>
<td>5</td>
<td>0.900</td>
<td>0.300</td>
<td>0.65 26</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>S1 A1 – – Pin</td>
<td>Solder⁶</td>
<td>X C D 0</td>
<td>0.5</td>
<td>5</td>
<td>0.600</td>
<td>0.200</td>
<td>0.65 26</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>G8 GK – – K1 – – Socket</td>
<td>Solder⁶</td>
<td>W C D 0</td>
<td>0.5</td>
<td>5</td>
<td>0.600</td>
<td>0.200</td>
<td>0.65 26</td>
<td>0.15</td>
</tr>
<tr>
<td>0 9</td>
<td>S1 A1 – – Pin</td>
<td>Solder⁶</td>
<td>X C D 0</td>
<td>0.5</td>
<td>5</td>
<td>0.600</td>
<td>0.200</td>
<td>0.65 26</td>
<td>0.15</td>
</tr>
<tr>
<td>1 0</td>
<td>S1 A1 – – Pin</td>
<td>Solder⁶</td>
<td>X C D 0</td>
<td>0.5</td>
<td>5</td>
<td>0.600</td>
<td>0.200</td>
<td>0.65 26</td>
<td>0.15</td>
</tr>
</tbody>
</table>

¹ Other contact configurations on request
² Other termination or reverse gender on request
³ Derating factor see page 69
⁴ SAE AS 13441:2004 method 3001.1
⁵ Max. operating voltage at NN [sea level] acc. to SAE AS 13441:2004 method 3001.1
⁶ Further information on page 70
⁷ Other cross sections on request
# PCB LAYOUT PRINT CONTACTS
## SIZE 0

<table>
<thead>
<tr>
<th>View on termination area</th>
<th>Data transmission protocols</th>
<th>Number of contacts</th>
<th>Length earth tag and pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin side</td>
<td>Socket side</td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="view1.png" alt="View 1" /></td>
<td><img src="view2.png" alt="View 2" /></td>
<td>7 pos.</td>
<td>GB Pin X mm</td>
</tr>
<tr>
<td><img src="view3.png" alt="View 3" /></td>
<td><img src="view4.png" alt="View 4" /></td>
<td>9 pos.</td>
<td>3.5</td>
</tr>
<tr>
<td><img src="view5.png" alt="View 5" /></td>
<td><img src="view6.png" alt="View 6" /></td>
<td>10 pos.</td>
<td>3.5</td>
</tr>
</tbody>
</table>

**LENGTH EARTH TAG AND PIN**

- **GB**: Earth tag 3.5
- **GK**: Earth tag 3.3
- **GW**: Earth tag 5.0
## CONTACT CONFIGURATIONS
### SIZE 0 – HIGH-SPEED INSERTS

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>Available connector styles</th>
<th>Contact type</th>
<th>Part number key</th>
<th>Contact diameter mm</th>
<th>Single contact nominal current A</th>
<th>Test voltage kVeff</th>
<th>Nominal voltage kVrms</th>
<th>Termination diameter mm</th>
<th>Termination cross section AWG mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 4</td>
<td>G8 GK</td>
<td>Socket</td>
<td>W F G 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
</tr>
<tr>
<td></td>
<td>S1 A1 GW</td>
<td>Pin</td>
<td>X F G 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>V F 0 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
</tr>
<tr>
<td>U 4</td>
<td>S1 A1 GW</td>
<td>Pin</td>
<td>X F G 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>V F 0 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
</tr>
<tr>
<td>0 4</td>
<td>G8 GK</td>
<td>Socket</td>
<td>W F G 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>V F 0 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>W M M 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
</tr>
<tr>
<td></td>
<td>S1 A1 –</td>
<td>Pin</td>
<td>X M M 0</td>
<td>0.7</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
</tr>
</tbody>
</table>

1 Other contact configurations on request
2 Other termination or reverse gender on request
3 Derating factor see page 69
4 SAE AS 13441:2004 method 3001.1
5 Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1
6 Further information on page 70
7 Other cross sections on request
PCB LAYOUT PRINT CONTACTS
SIZE 0

View on termination area | Data transmission protocols
---|---
Pin side | Socket side

- Ethernet Type CAT 5** up to 100 Mbit
- USB® 2.0*
- USB® 3.2 Gen 1x1**

Number of contacts

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>GB</th>
<th>GK</th>
<th>GW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length earth tag and pin</td>
<td>Pin X</td>
<td>Pin Y</td>
<td>Pin Z</td>
<td></td>
</tr>
<tr>
<td>GB</td>
<td>3.5</td>
<td>3.5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GK</td>
<td>3.5</td>
<td>3.5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GW</td>
<td>5.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** ISO/IEC 11801-2017 Further information on request
* Acc. Universal Serial Bus 3.2 Spec. 2017
** Further information on request
*** For data transmission protocols, please refer to page 2

LENGTH EARTH TAG AND PIN

<table>
<thead>
<tr>
<th></th>
<th>Earth tag</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB</td>
<td>3.5</td>
</tr>
<tr>
<td>GK</td>
<td>3.3</td>
</tr>
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<td>GW</td>
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## CONTACT CONFIGURATIONS
### SIZE 0 – COAX (50 Ω, 1.9 GHz)

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>Available connector styles</th>
<th>Contact type</th>
<th>Part number key</th>
<th>Contact diameter</th>
<th>Single contact nominal current</th>
<th>Test voltage (^1)</th>
<th>Nominal voltage (^2)</th>
<th>Termination diameter</th>
<th>Termination cross section</th>
</tr>
</thead>
<tbody>
<tr>
<td>K 1</td>
<td>G8 GK</td>
<td>Solder</td>
<td>X J H 0</td>
<td>10</td>
<td>1.1</td>
<td>0.9</td>
<td>7</td>
<td>1.800</td>
<td>0.600</td>
</tr>
<tr>
<td>S1 A1 – –</td>
<td>G6 K1</td>
<td>Pin</td>
<td>V J 0 0</td>
<td>0.9</td>
<td></td>
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<tr>
<td>S1 A1 – –</td>
<td>Socket Solder</td>
<td>W J H 0</td>
<td>10</td>
<td></td>
<td></td>
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</tbody>
</table>

\(^1\) SAE AS 13441:2004 method 3001.1
\(^2\) Max. operating voltage at NN [sea level] acc. to SAE AS 13441:2004 method 3001.1
Further information on page 70
PCB LAYOUT PRINT CONTACTS
SIZE 0 – COAX

<table>
<thead>
<tr>
<th>View on termination area</th>
<th>Data transmission protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin side</td>
<td>Socket side</td>
</tr>
<tr>
<td><img src="image-url" alt="Image" /></td>
<td>50 Ohm Coax 1.9 GHz @ VSWR 1.25 [Cable RG 174]</td>
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<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>Length earth tag and pin</th>
</tr>
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<tbody>
<tr>
<td>1 pos.</td>
<td>GB</td>
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<tr>
<td><img src="image-url" alt="Diagram" /></td>
<td>Pin X</td>
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LENGTH EARTH TAG AND PIN

<table>
<thead>
<tr>
<th>GB</th>
<th><img src="image-url" alt="Diagram" /></th>
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</thead>
<tbody>
<tr>
<td>Pin X</td>
<td>Earth tag 3.5</td>
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<tr>
<th>GK</th>
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<tbody>
<tr>
<td>Pin Y</td>
<td>Earth tag 3.3</td>
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# CONTACT CONFIGURATIONS
## SIZE 1 (5 POS. – 16 POS.)

<table>
<thead>
<tr>
<th>Number of contacts&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Available connector styles</th>
<th>Contact type&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Part number key</th>
<th>Contact diameter</th>
<th>Single contact nominal current&lt;sup&gt;3&lt;/sup&gt;</th>
<th>Test voltage&lt;sup&gt;4&lt;/sup&gt; Contact to contact</th>
<th>Nominal voltage&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Termination diameter</th>
<th>Termination cross section&lt;sup&gt;1&lt;/sup&gt;</th>
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</thead>
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<td>G8 K1 Socket</td>
<td>Solder&lt;sup&gt;6&lt;/sup&gt;</td>
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</tr>
<tr>
<td>S1 A1 Pin</td>
<td>X J G 0</td>
<td></td>
<td></td>
<td>10</td>
<td>0.85</td>
<td>22</td>
<td>0.38</td>
<td></td>
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<tr>
<td>0</td>
<td>G8 K1 Socket</td>
<td>Solder&lt;sup&gt;6&lt;/sup&gt;</td>
<td>W F G 0</td>
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<td>S1 A1 Pin</td>
<td>X F G 0</td>
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<td>7</td>
<td>0.85</td>
<td>22</td>
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<tr>
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<td>G8 K1 Socket</td>
<td>Solder&lt;sup&gt;6&lt;/sup&gt;</td>
<td>W C D 0</td>
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<td>0.600</td>
<td>0.200</td>
<td>0.65</td>
<td>26</td>
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</tr>
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<tr>
<td>S1 A1 Pin</td>
<td>X C D 0</td>
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<td>26</td>
<td>0.15</td>
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<tr>
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<td>G8 K1 Socket</td>
<td>Solder&lt;sup&gt;6&lt;/sup&gt;</td>
<td>W C D 0</td>
<td>5</td>
<td>0.600</td>
<td>0.200</td>
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<td></td>
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<td>0.600</td>
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</tr>
<tr>
<td>S1 A1 Pin</td>
<td>X C D 0</td>
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<td>0.65</td>
<td>26</td>
<td>0.15</td>
</tr>
</tbody>
</table>

<sup>1</sup> Other contact configurations on request  
<sup>2</sup> Other termination or reverse gender on request  
<sup>3</sup> Derating factor see page 69  
<sup>4</sup> SAE AS 13441:2004 method 3001.1  
<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1  
<sup>6</sup> Further information on page 70  
<sup>6</sup> Other cross sections on request
PCB LAYOUT PRINT CONTACTS
SIZE 1

<table>
<thead>
<tr>
<th>View on termination area</th>
<th>Data transmission protocols</th>
<th>Number of contacts</th>
<th>Length earth tag and pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin side</td>
<td>Socket side</td>
<td></td>
<td>GB</td>
</tr>
<tr>
<td>5 pos.</td>
<td>3.5</td>
<td>3.0</td>
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</tr>
<tr>
<td>8 pos.</td>
<td>3.5</td>
<td>3.0</td>
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</tr>
<tr>
<td>14 pos.</td>
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<tr>
<td>16 pos.</td>
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LENGTH EARTH TAG AND PIN

<table>
<thead>
<tr>
<th></th>
<th>Earth tag</th>
<th>Pin</th>
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<tr>
<td>G8</td>
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<td>X</td>
</tr>
<tr>
<td>GK</td>
<td>3.0</td>
<td>Earth tag</td>
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Table of contents
# CONTACT CONFIGURATIONS
## SIZE 1 – HIGH-SPEED INSERTS

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>Available connector styles</th>
<th>Contact type</th>
<th>Part number key</th>
<th>Contact diameter mm</th>
<th>Single contact nominal current A</th>
<th>Test voltage kVpeak</th>
<th>Nominal voltage kVrms</th>
<th>Termination diameter mm</th>
<th>Termination cross section AWG mm²</th>
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<tbody>
<tr>
<td>0 4</td>
<td>G8 GK</td>
<td>Solder</td>
<td>W J G 0</td>
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<td>0.85</td>
<td>22</td>
<td>0.38</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>U J 0 0</td>
<td>0.9 7</td>
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<td>0.500</td>
<td>0.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1 A1 – – Pin</td>
<td>X J G 0</td>
<td>Solder</td>
<td>10</td>
<td>0.85 22</td>
<td>0.38</td>
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</tr>
<tr>
<td>8 12</td>
<td>G8 G6 K1</td>
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<td>W C D 0</td>
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<td>0.65</td>
<td>26</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>S1 A1 – – Pin</td>
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<td>Solder</td>
<td>5</td>
<td>0.65 26</td>
<td>0.15</td>
<td></td>
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</tbody>
</table>

1. Other contact configurations on request
2. Other termination or reverse gender on request
3. Derating factor see page 69
4. SAE AS 13441:2004 method 3001.1
5. Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1
6. Further information on page 70
7. Other cross sections on request
## PCB LAYOUT PRINT CONTACTS

### SIZE 1

<table>
<thead>
<tr>
<th>View on termination area</th>
<th>Data transmission protocols</th>
<th>Number of contacts</th>
<th>Length earth tag and pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin side</td>
<td>Ethernet Type CAT 5' up to 100 Mbit</td>
<td>High-speed 4 pos.</td>
<td>GB Pin X: 3.5, Pin Y: 3.0</td>
</tr>
<tr>
<td>Socket side</td>
<td></td>
<td></td>
<td>GK Pin X: 3.0, Pin Y: 3.0</td>
</tr>
<tr>
<td>Pin side</td>
<td>Ethernet Type CAT 5' up to 1 Gbit</td>
<td>High-speed 8 pos.</td>
<td>GB Pin X: 3.5, Pin Y: 3.0</td>
</tr>
<tr>
<td>Socket side</td>
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<td>GK Pin X: 3.0, Pin Y: 3.0</td>
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## CONTACT CONFIGURATIONS
### SIZE 1.5

<table>
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<tr>
<th>Number of contacts</th>
<th>Available connector styles</th>
<th>Contact type</th>
<th>Contact key</th>
<th>Part number</th>
<th>Single contact nominal current</th>
<th>Test voltage</th>
<th>Nominal voltage</th>
<th>Termination diameter</th>
<th>Termination cross section</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0</td>
<td>G8 GK</td>
<td>Socket</td>
<td>W F G 0</td>
<td></td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
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<tr>
<td></td>
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<td>Print/PCB</td>
<td>U F 0 0</td>
<td>0.7</td>
<td>5</td>
<td>0.900</td>
<td>0.300</td>
<td>0.5</td>
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</tr>
<tr>
<td>S1 A1</td>
<td>Pin</td>
<td>Solder²</td>
<td>X F G 0</td>
<td>7</td>
<td>0.900</td>
<td>0.300</td>
<td>0.85</td>
<td>22 0.38</td>
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<tr>
<td>1 9</td>
<td>G8 GK</td>
<td>Socket</td>
<td>W C D 0</td>
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<td>5</td>
<td>0.800</td>
<td>0.275</td>
<td>0.65</td>
<td>26 0.15</td>
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<td></td>
<td></td>
<td>Print/PCB</td>
<td>U C 0 0</td>
<td>0.5</td>
<td>5</td>
<td>0.800</td>
<td>0.275</td>
<td>0.5</td>
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</tr>
<tr>
<td>S1 A1</td>
<td>Pin</td>
<td>Solder²</td>
<td>X C D 0</td>
<td>5</td>
<td>0.800</td>
<td>0.275</td>
<td>0.65</td>
<td>26 0.15</td>
<td></td>
</tr>
</tbody>
</table>

### HIGH-SPEED INSERTS

| D 8                | G8 GK                     | Socket       | W F G 0     |             | 7                           |               |                  |                        |
|                    |                           | Print/PCB    | U F 0 0     | 0.7         | 5                           | 1.200        | 0.400           |                        |
| S1 A1              | Pin                       | Solder²      | X F G 0     | 7           | 0.85                        | 22 0.38                  |

1 Other contact configurations on request
2 Other termination or reverse gender on request
3 Derating factor see page 69
4 SAE AS 13441.2004 method 3001.1
5 Max. operating voltage at NN (sea level) acc. to SAE AS 13441.2004 method 3001.1
6 Further information on page 70
7 Other cross sections on request
PCB LAYOUT PRINT CONTACTS
SIZE 1.5

<table>
<thead>
<tr>
<th>View on termination area</th>
<th>Data transmission protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin side</td>
<td>Socket side</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>Length earth tag and pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 pos.</td>
<td>G8 Pin X</td>
</tr>
<tr>
<td>19 pos.</td>
<td>G8 Pin X</td>
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HIGH-SPEED INSERTS

<table>
<thead>
<tr>
<th>Ethernet Type CAT 5e up to 1 Gbit</th>
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</thead>
</table>

LENGTH EARTH TAG AND PIN

7 ISO/IEC 11801:2017. Further information on request
## CONTACT CONFIGURATIONS
### SIZE 2

<table>
<thead>
<tr>
<th>Number of contacts&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Available connector styles</th>
<th>Contact type&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Part number key</th>
<th>Contact diameter</th>
<th>Single contact nominal current&lt;sup&gt;3&lt;/sup&gt;</th>
<th>Test voltage&lt;sup&gt;4&lt;/sup&gt;</th>
<th>Nominal voltage&lt;sup&gt;4&lt;/sup&gt;</th>
<th>Termination diameter</th>
<th>Termination cross section&lt;sup&gt;5&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>G8 GK</td>
<td>– K1 Solder&lt;sup&gt;6&lt;/sup&gt;</td>
<td>W P H 0</td>
<td>14</td>
<td>1.3</td>
<td>7</td>
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<td>0.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– – Print</td>
<td>U P 0 0</td>
<td>1.3</td>
<td>7</td>
<td>1.500</td>
<td>0.500</td>
<td>0.7</td>
<td>–</td>
</tr>
<tr>
<td>1</td>
<td>G8 G6 K1</td>
<td>Solder&lt;sup&gt;6&lt;/sup&gt;</td>
<td>W F G 0</td>
<td>7</td>
<td>0.7</td>
<td>5</td>
<td>1.000</td>
<td>0.333</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– – Print</td>
<td>U F 0 0</td>
<td>0.7</td>
<td>5</td>
<td>1.000</td>
<td>0.333</td>
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<tr>
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<td>5</td>
<td>0.5</td>
<td>5</td>
<td>0.900</td>
<td>0.300</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– – Print</td>
<td>U C 0 0</td>
<td>0.5</td>
<td>5</td>
<td>0.900</td>
<td>0.300</td>
<td>0.5</td>
<td>–</td>
</tr>
</tbody>
</table>

<sup>1</sup> Other contact configurations on request
<sup>2</sup> Other termination or reverse gender on request
<sup>3</sup> Derating factor see page 63
<sup>4</sup> SAE AS 13441.2004 method 3001.1
<sup>5</sup> Max. operating voltage at NN [sea level] acc. to SAE AS 13441.2004 method 3001.1
<sup>6</sup> Further information on page 70
<sup>7</sup> Other cross sections on request
PCB LAYOUT PRINT CONTACTS
SIZE 2

<table>
<thead>
<tr>
<th>View on termination area</th>
<th>Data transmission protocols</th>
<th>Number of contacts</th>
<th>Length earth tag and pin</th>
</tr>
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<tbody>
<tr>
<td>Pin side</td>
<td>Socket side</td>
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</tr>
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</tr>
<tr>
<td></td>
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<td>26 pos.</td>
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</tr>
</tbody>
</table>

LENGTH EARTH TAG AND PIN

G8 Earth tag 5.0 Pin X

GK 3.0 Earth tag Pin
## CONTACT CONFIGURATIONS
### SIZE 2 – HIGH-SPEED INSERTS

<table>
<thead>
<tr>
<th>Number of contacts²</th>
<th>Available connector styles</th>
<th>Contact type²</th>
<th>Part number key</th>
<th>Contact diameter mm</th>
<th>Single contact nominal current³ A</th>
<th>Test voltage² Contact to contact kVeff</th>
<th>Nominal voltage³ kVrms</th>
<th>Termination diameter mm</th>
<th>Termination cross section mm²</th>
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</thead>
<tbody>
<tr>
<td>0 4</td>
<td>G6 K1</td>
<td>Solder⁴</td>
<td>W P H 0</td>
<td>14</td>
<td>1.1</td>
<td>0.7</td>
<td>–</td>
<td>20 0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G8 GK</td>
<td>– –</td>
<td>Print</td>
<td>1.3</td>
<td>7</td>
<td>1.950</td>
<td>0.650</td>
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<tr>
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<td>G6 K1</td>
<td>Solder⁴</td>
<td>X P H 0</td>
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</tr>
<tr>
<td></td>
<td>G8 GK</td>
<td>– –</td>
<td>Print</td>
<td>0.9</td>
<td>7</td>
<td>1.500</td>
<td>0.500</td>
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<td>G6 K1</td>
<td>W J G 0</td>
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<td>0.85</td>
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<td>0.38</td>
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<td>22</td>
<td>0.38</td>
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</tbody>
</table>

1 Other contact configurations on request
2 Other termination or reverse gender on request
3 Derating factor see page 69
4 SAE AS 13441.2004 method 3001.1
5 Max. operating voltage at NN [sea level] acc. to SAE AS 13441.2004 method 3001.1
6 Further information on page 70
7 Other cross sections on request
# PCB Layout Print Contacts

## Size 2

<table>
<thead>
<tr>
<th>View on termination area</th>
<th>Data transmission protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin side</td>
<td>Socket side</td>
</tr>
<tr>
<td>Ethernet Type CAT 6,(^7) up to 100 Mbit</td>
<td></td>
</tr>
<tr>
<td>Ethernet Class E,(^7) Channel up to 80 m 10 Gbit</td>
<td></td>
</tr>
<tr>
<td>Ethernet Type CAT 5 1 Gbit USB(^8) 2.0 <strong>(^9)</strong></td>
<td></td>
</tr>
<tr>
<td>HDMI(^9)</td>
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</tr>
</tbody>
</table>

### Number of contacts

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>Length earth tag and pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-speed 4 pos.</td>
<td>G8</td>
</tr>
<tr>
<td>Pin X mm</td>
<td>Pin Y mm</td>
</tr>
<tr>
<td>4.5</td>
<td>3.0</td>
</tr>
</tbody>
</table>

| High-speed 8 pos. | G8 | GK |
| Pin X mm | Pin Y mm |
| 5.0 | 3.5 |

| High-speed 12 pos. | G8 | GK |
| Pin X mm | Pin Y mm |
| 5.5 | 3.0 |

| High-speed 16 pos. | G8 | GK |
| Pin X mm | Pin Y mm |
| 5.5 | 3.0 |

---

\(^7\) ISO/IEC 11801:2017 Further information on request

\(^8\) Acc. Universal Serial Bus 3.2 Spec.: 2017

Further information on request

\(^9\) For data transmission protocols, please refer to page 2

### Length earth tag and pin

<table>
<thead>
<tr>
<th>G8</th>
<th>Earth tag 5.5</th>
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<tr>
<td>Pin</td>
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</tbody>
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<table>
<thead>
<tr>
<th>GK</th>
<th>3.0 Earth tag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin</td>
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</tbody>
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Table of contents

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51
## CONTACT CONFIGURATIONS
### SIZE 3

<table>
<thead>
<tr>
<th>Number of contacts¹</th>
<th>Available connector styles</th>
<th>Contact type²</th>
<th>Part number key</th>
<th>Contact diameter</th>
<th>Single contact nominal current³</th>
<th>Test voltage⁴ Contact to contact kVeff</th>
<th>Nominal voltage ⁴</th>
<th>Termination diameter</th>
<th>Termination cross section⁶</th>
</tr>
</thead>
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<tr>
<td>0 4</td>
<td>G8</td>
<td>– – K1</td>
<td>Solder⁵</td>
<td>W T S 0</td>
<td>22.0</td>
<td>2.4</td>
<td>14 2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– – –</td>
<td>Print</td>
<td>U T 0 0</td>
<td>2.0</td>
<td>7</td>
<td>1.650 0.550</td>
<td>0.7</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>S1 A1 – – Pin</td>
<td>Solder⁵</td>
<td>X T S 0</td>
<td>22.0</td>
<td>2.4</td>
<td>14 2.5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1 8</td>
<td>G8</td>
<td>– – K1</td>
<td>Solder⁵</td>
<td>W J G 0</td>
<td>10</td>
<td>0.85</td>
<td>22 0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– – –</td>
<td>Print</td>
<td>U J 0 0</td>
<td>0.9</td>
<td>7</td>
<td>1.350 0.450</td>
<td>0.7</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>S1 A1 – – Pin</td>
<td>Solder⁵</td>
<td>X J G 0</td>
<td>10</td>
<td>0.85</td>
<td>22 0.38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 6</td>
<td>G8</td>
<td>– – K1</td>
<td>Solder⁵</td>
<td>W F G 0</td>
<td>7</td>
<td>0.85</td>
<td>22 0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– – –</td>
<td>Print/</td>
<td>U F 0 0</td>
<td>0.7</td>
<td>5</td>
<td>1.000 0.333</td>
<td>0.5</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>S1 A1 – – Pin</td>
<td>Solder⁵</td>
<td>X F G 0</td>
<td>7</td>
<td>0.85</td>
<td>22 0.38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 7</td>
<td>G8</td>
<td>– – K1</td>
<td>Solder⁵</td>
<td>W C D 0</td>
<td>5</td>
<td>0.65</td>
<td>26 0.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>– – –</td>
<td>Print</td>
<td>U C 0 0</td>
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<td>5</td>
<td>0.900 0.300</td>
<td>0.5</td>
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</tr>
<tr>
<td></td>
<td>S1 A1 – – Pin</td>
<td>Solder⁵</td>
<td>X C D 0</td>
<td>5</td>
<td>0.65</td>
<td>26 0.15</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

¹ Other contact configurations on request
² Other termination or reverse gender on request
³ Derating factor see page 89
⁴ SAE AS 13441:2004 method 3001.1
⁵ Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1
⁶ Further information on page 70

Further information on page 70

<table>
<thead>
<tr>
<th>Pin side</th>
<th>Socket side</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Y</td>
<td>R – P</td>
</tr>
<tr>
<td>– 0 0 0 0</td>
<td>– 0 0 0 0</td>
</tr>
</tbody>
</table>
PCB LAYOUT PRINT CONTACTS
SIZE 3

<table>
<thead>
<tr>
<th>View on termination area</th>
<th>Data transmission protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin side</td>
<td>Socket side</td>
</tr>
<tr>
<td>4 pos.</td>
<td>5.0</td>
</tr>
<tr>
<td>18 pos.</td>
<td>4.5</td>
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<td>26 pos.</td>
<td>4.5</td>
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<tr>
<td>37 pos.</td>
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LENGTH EARTH TAG AND PIN

Earth tag 5.5
Pin X

Table of contents

53
## CONTACT CONFIGURATIONS

### SIZE 4.5

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>Available connector styles</th>
<th>Contact type</th>
<th>Part number key</th>
<th>Contact diameter (mm)</th>
<th>Single contact nominal current (A)</th>
<th>Test voltage (kVeff)</th>
<th>Nominal voltage (kVrms)</th>
<th>Termination diameter (mm)</th>
<th>Termination cross section (AWG/mm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>G8</td>
<td>Solder</td>
<td>W F G 0</td>
<td>0.7</td>
<td>5</td>
<td>1.000</td>
<td>0.333</td>
<td>0.5</td>
<td>– – –</td>
</tr>
<tr>
<td>5</td>
<td>S1</td>
<td>Pin</td>
<td>Solder</td>
<td>0.7</td>
<td>7</td>
<td>1.000</td>
<td>0.333</td>
<td>0.5</td>
<td>– – –</td>
</tr>
</tbody>
</table>

¹ Other contact configurations on request
² Derating factor see page 69
³ SAE AS 13441:2004 method 3001.1
⁴ Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1
Further information on page 70
**PCB LAYOUT PRINT CONTACTS**

**SIZE 4.5**

<table>
<thead>
<tr>
<th>View on termination area</th>
<th>Data transmission protocols</th>
<th>Number of contacts</th>
<th>Length earth tag and pin</th>
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</thead>
<tbody>
<tr>
<td>Pin side</td>
<td>Socket side</td>
<td>55 pos.</td>
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**LENGTH EARTH TAG AND PIN**

![Image of earth tag and pin](image_url)
## TYPE AND STYLE

### PROTECTION CAPS (CONDUCTIVE SILICONE)

### ENVIRONMENTAL AND ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Type</th>
<th>Performance</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tightness</td>
<td>IP6K7</td>
<td>ISO 20653:2013</td>
</tr>
<tr>
<td>Shielding effectiveness</td>
<td>&gt; 55 dB</td>
<td>VG 95214-11</td>
</tr>
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</table>

### MATERIAL

<table>
<thead>
<tr>
<th>Part</th>
<th>Material</th>
<th>Flammability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap</td>
<td>Conductive silicone</td>
<td>UL94 (V1)</td>
</tr>
<tr>
<td>Lanyard</td>
<td>Aramid</td>
<td>UL94 (V0)</td>
</tr>
<tr>
<td>Crimp ferrule, lug</td>
<td>Brass, copper</td>
<td></td>
</tr>
</tbody>
</table>

Assembly information including tools see ODU instruction 010.645.001.000.005 (available at [www.odu-connectors.com/downloads/assembly-instructions](http://www.odu-connectors.com/downloads/assembly-instructions))

### FOR PLUGS S1, A1 AND PANEL PLUG REAR MOUNT GW

Crimp ferrule and lug are included.

<table>
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<tr>
<th>Size</th>
<th>Part number</th>
<th>Dimensions in mm</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
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<tr>
<td>0</td>
<td>16.5</td>
<td>15.0</td>
</tr>
<tr>
<td>1</td>
<td>17.8</td>
<td>17.0</td>
</tr>
<tr>
<td>1.5</td>
<td>17.0</td>
<td>18.0</td>
</tr>
<tr>
<td>2</td>
<td>19.5</td>
<td>21.0</td>
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<tr>
<td>3</td>
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<td>25.0</td>
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<td>4.5</td>
<td>27.5</td>
<td>33.5</td>
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</table>
### FOR RECEPTACLES G6 AND G8

Crimp ferrule and lug are included.

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<th>Dimensions in mm</th>
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<tr>
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<tr>
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<td>715.645.097.002.945</td>
<td>15.3</td>
</tr>
<tr>
<td>2</td>
<td>702.645.097.002.945</td>
<td>17.5</td>
</tr>
<tr>
<td>3</td>
<td>703.645.097.002.945</td>
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<tr>
<td>4.5</td>
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### FOR RECEPTACLE GK

Crimp ferrule and lug are included.

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<tbody>
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<tr>
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FOR IN-LINE RECEPTACLE K1

DIMENSIONS

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<tbody>
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<tr>
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<td>701.645.097.002.945</td>
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<tr>
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<td>703.645.097.002.945</td>
<td>20.5</td>
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DIMENSIONS

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<tr>
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<th>Part number</th>
<th>Dimensions in mm</th>
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<tbody>
<tr>
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<tr>
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<tr>
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PROTECTION CAPS (ALUMINIUM)

FOR RECEPTACLES AND IN-LINE RECEPTACLES

ENVIRONMENTAL AND ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Type</th>
<th>Performance</th>
<th>Standard</th>
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</thead>
<tbody>
<tr>
<td>Tightness</td>
<td>IPX8 / 1m 120min</td>
<td>ISO 20653:2013 / MIL-STD-810G:2008 512.5</td>
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<tr>
<td></td>
<td>IPX9K</td>
<td>ISO 20653:2013</td>
</tr>
<tr>
<td>Shielding effectiveness</td>
<td>&gt; 65 dB</td>
<td>V9 95214-11</td>
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</tbody>
</table>

MATERIAL

<table>
<thead>
<tr>
<th>Part</th>
<th>Material</th>
<th>Surface</th>
<th>Flammability</th>
</tr>
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<tbody>
<tr>
<td>Cap</td>
<td>Aluminium</td>
<td>Ruthenium</td>
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</tr>
<tr>
<td>Lanyard</td>
<td>Aramid</td>
<td>UL94 (V0)</td>
<td></td>
</tr>
<tr>
<td>Crimp ferrule</td>
<td>Brass</td>
<td>Zinc-nickel</td>
<td></td>
</tr>
<tr>
<td>Cable lug</td>
<td>Copper</td>
<td>Zinc-nickel</td>
<td></td>
</tr>
<tr>
<td>Washer</td>
<td>Brass</td>
<td>Zinc-nickel</td>
<td></td>
</tr>
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Assembly information including tools see ODU instruction 010.645.001.000.005 (available at www.odu-connectors.com/downloads/assembly-instructions)

1 Information on watertightness see page 66

DIMENSIONS

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<tr>
<th>Size</th>
<th>Part number</th>
<th>Dimensions in mm</th>
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<tbody>
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<td></td>
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</tr>
<tr>
<td>1.5</td>
<td>715.645.097.002.659</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>702.645.097.002.659</td>
<td>19</td>
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<td>3</td>
<td>703.645.097.002.659</td>
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Crimp ferrule and lug are included.
## ACCESSORIES FOR CAPS (TO USE INSTEAD OF CABLE LUG)

**DIMENSIONS**

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<thead>
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<th>Thread of receptacle</th>
<th>Part number</th>
<th>Dimensions in mm</th>
<th>Material: brass</th>
<th>Surface: zinc-nickel</th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td>A     B     C    D    E    F</td>
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<td></td>
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<tr>
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<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>1.5</td>
<td>14</td>
<td>715.140.246.326.000</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>16</td>
<td>721.140.246.326.000</td>
<td>16.2  20    32    4    1.6  0.5</td>
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</tr>
<tr>
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<td>20</td>
<td>722.140.246.326.000</td>
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## TECHNICAL INFORMATION

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<th>Page</th>
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<tbody>
<tr>
<td>Technical data</td>
<td>64</td>
</tr>
<tr>
<td>Protection ODU AMC®</td>
<td>66</td>
</tr>
<tr>
<td>International protection classes</td>
<td>67</td>
</tr>
<tr>
<td>Turned contact</td>
<td>68</td>
</tr>
<tr>
<td>Current load of turned contacts</td>
<td>69</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>70</td>
</tr>
<tr>
<td>Conversions /AWG</td>
<td>72</td>
</tr>
<tr>
<td>Technical terms</td>
<td>73</td>
</tr>
</tbody>
</table>
## TECHNICAL DATA

### ENVIRONMENTAL AND TESTING

<table>
<thead>
<tr>
<th>Type</th>
<th>Performance</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>–51 °C up to +125 °C</td>
<td>IEC 60512-11-9-2002 IEC 60512-11-10:2002</td>
</tr>
<tr>
<td>Thermal shock</td>
<td>–65 °C up to +150 °C</td>
<td>EIA 364-32-E, IEC 60068-2-14</td>
</tr>
<tr>
<td>Humidity cyclic</td>
<td>85% up to 95%, 28 °C up to 71 °C</td>
<td>MIL-STD-1344A Method 1002.2 Type III, IEC 60068-2-38</td>
</tr>
<tr>
<td>Low pressure (rapid decompression)</td>
<td>59.1 kPa to 18.8 kPa</td>
<td>AECTP 300, 312 Procedure III (STANAG 4370)</td>
</tr>
<tr>
<td>Low pressure</td>
<td>57.2 kPa, –55 °C</td>
<td>MIL-STD-810G:2008 500.5 IEC 60068-2-40</td>
</tr>
<tr>
<td>Icing</td>
<td>Rime ice 6 mm</td>
<td>MIL-STD-810G:2008 521.3</td>
</tr>
<tr>
<td>Corrosion resistance</td>
<td>96 h salt mist, 5% salt solution, 35 °C</td>
<td>EIA-364-26B STANAG 4370, AECTP 300-309 MIL-STD-810G:2008 509.5</td>
</tr>
<tr>
<td>Mould growth</td>
<td>European fungus</td>
<td>IEC 60068-2-10:2005</td>
</tr>
<tr>
<td>Solar radiation</td>
<td></td>
<td>IEC 60068-2-5:2018</td>
</tr>
<tr>
<td>Chemical endurance</td>
<td>Several substances²</td>
<td>ISO 16750-5:2010-04</td>
</tr>
</tbody>
</table>

1 Including temperature rise due to contact load
2 Substances listed at ODU datasheet 009.410.021.000.000
3 A11Y, GK1Y connector pair

**RoHS 2011/65/EC recognized**

### MECHANICAL DATA

<table>
<thead>
<tr>
<th>Type</th>
<th>Performance</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical endurance</td>
<td>5,000 mating cycles</td>
<td>IEC 60512-5-9-a EIA-364-09</td>
</tr>
<tr>
<td>Vibration</td>
<td></td>
<td>MIL-STD 1344 Method 2005 EIA-364-28</td>
</tr>
<tr>
<td>Shock</td>
<td>100 g amplitude, half sine pulse of 3 ms, no discontinuity &gt; 1 μs</td>
<td>MIL-STD 1344 Method 2004 EIA-364-27</td>
</tr>
</tbody>
</table>

### ELECTRICAL DATA

<table>
<thead>
<tr>
<th>Type</th>
<th>Performance</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact resistance (fig. 1) over 5,000 mating cycles</td>
<td>Contact diameter / resistance Ø 0.5 mm &lt; 5 mOhm Ø 0.7 mm &lt; 4 mOhm Ø 0.9 mm &lt; 4 mOhm Ø 1.3 mm &lt; 3 mOhm Ø 2.0 mm &lt; 3 mOhm</td>
<td>IEC 60512-2-1</td>
</tr>
<tr>
<td>Shell resistance (fig. 2)</td>
<td>&lt; 5 mOhm</td>
<td>IEC 60512-2-1</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>&gt; 100 MOhm</td>
<td>IEC 60512-3-1</td>
</tr>
<tr>
<td>Shielding effectiveness³</td>
<td>&gt; 65 dB</td>
<td>VG 95214-11</td>
</tr>
</tbody>
</table>

### MEASUREMENT POINTS

**FIG. 1**
![Figure 1](image1.png)

**FIG. 2**
![Figure 2](image2.png)

² Substances listed at ODU datasheet 009.410.021.000.000
³ A11Y, GK1Y connector pair
# MATERIAL AND SURFACE TREATMENTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Material</th>
<th>Standard</th>
<th>Surface</th>
<th>Standard</th>
<th>Flammability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>EU</td>
<td>US</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing (conductive parts)</td>
<td>Aluminium AlMgSiSn1Bi</td>
<td>EN-AW 6023</td>
<td></td>
<td>Ruthenium over electroless nickel</td>
<td></td>
</tr>
<tr>
<td>Housing / nut (non conductive parts)</td>
<td>Aluminium AlMgSiSn1Bi</td>
<td>EN-AW 6023</td>
<td></td>
<td>Black anodized</td>
<td></td>
</tr>
<tr>
<td>Backshell (Push-Pull plug)</td>
<td>Aluminium AlMgSiSn1Bi</td>
<td>EN-AW 6023</td>
<td></td>
<td>Ruthenium over electroless nickel</td>
<td></td>
</tr>
<tr>
<td>Backshell (Break-Away plug and in-line receptacle)</td>
<td>Aluminium AlMgSiSn1Bi</td>
<td>EN-AW 6023</td>
<td></td>
<td>Electroless nickel</td>
<td>SAE-AMS2404</td>
</tr>
<tr>
<td>EMC-locking ring</td>
<td>CuBe2</td>
<td>CW102C [2.1248]</td>
<td></td>
<td>Electrodeposited nickel</td>
<td></td>
</tr>
<tr>
<td>Crimp sleeve</td>
<td>CuZn38Pb1.5</td>
<td>CW608N [2.0371]</td>
<td>C35300</td>
<td>Electrodeposited nickel</td>
<td></td>
</tr>
<tr>
<td>Color ring</td>
<td>PSU</td>
<td></td>
<td></td>
<td>UL94 [V0]</td>
<td></td>
</tr>
<tr>
<td>Insulator</td>
<td>PEEK (standard), PTFE (coax)</td>
<td></td>
<td></td>
<td>UL94 [V0]</td>
<td></td>
</tr>
<tr>
<td>Pin contact</td>
<td>Copper alloy</td>
<td>CW614N [2.0401]</td>
<td>C38500</td>
<td>1.27 µm gold over electrodeposited nickel</td>
<td>MIL-G-45204D</td>
</tr>
<tr>
<td>Socket contact</td>
<td>Copper alloy</td>
<td>CW614N [2.0401]</td>
<td>C38500</td>
<td>1.27 µm gold over electrodeposited nickel</td>
<td>MIL-G-45204D</td>
</tr>
<tr>
<td>O-rings</td>
<td>FVMQ (floursilikon)</td>
<td></td>
<td></td>
<td>UL94 [V0]</td>
<td></td>
</tr>
<tr>
<td>Potting</td>
<td>Potting compound</td>
<td></td>
<td></td>
<td>UL94 [V0]</td>
<td></td>
</tr>
<tr>
<td>Overmolding material</td>
<td>TPU</td>
<td></td>
<td></td>
<td>UL94 [HB]</td>
<td></td>
</tr>
<tr>
<td>Shrink boots</td>
<td>Polyester-elastomere</td>
<td></td>
<td></td>
<td>acc to. VG95343</td>
<td></td>
</tr>
</tbody>
</table>

RoHS 2011/65/EC recognized
PROTECTION ODU AMC®

IP RATING ACC. TO ISO 20653:2013
IMMERSION ACC. TO MIL-STD-810G 512.5
SAND AND DUST ACC. TO MIL-STD-810G 510.5

The protection is only assured when backshell potted during cable assembly, according to ODU AMC® assembly instructions.

1 Full protection
2 Contact area not protected
3 Size 3/E(4,5) IP18
# INTERNATIONAL PROTECTION CLASSES


<table>
<thead>
<tr>
<th>Code no.</th>
<th>Protection against access to hazardous parts / Protection against ingress of solid foreign objects</th>
<th>First code number</th>
<th>Protection against harmful effects due to the ingress of water</th>
<th>Second code number</th>
<th>Protection against water</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No protection / No protection against solid foreign objects</td>
<td>0</td>
<td>No protection against water</td>
<td>0</td>
<td>No protection against water</td>
</tr>
<tr>
<td>1</td>
<td>Protection against contact with the back of hand (no protection against intentional contact)</td>
<td>1</td>
<td>Protection against dripping water</td>
<td>1</td>
<td>Vertical drips shall not have any harmful effects or impair performance.</td>
</tr>
<tr>
<td>2</td>
<td>Protection against finger contact</td>
<td>2</td>
<td>Protection against dripping water [tilted]</td>
<td>2</td>
<td>Vertical drips shall not have any harmful effects or impair performance when the enclosure is tilted at any angle up to 15° on either side of the vertical</td>
</tr>
<tr>
<td>3</td>
<td>Protection against penetration of tools (e.g. screwdrivers)</td>
<td>3</td>
<td>Protection against spray water</td>
<td>3</td>
<td>Water spray at an angle up to 60° on either side of the vertical shall have no harmful effects or impair performance</td>
</tr>
<tr>
<td>4</td>
<td>Protection against granular foreign objects</td>
<td>4</td>
<td>Protection against splashing water</td>
<td>4</td>
<td>Water which splashes against the enclosure from any direction shall have no harmful effects or impair performance</td>
</tr>
<tr>
<td>4K</td>
<td>Protection against splashing water with increased pressure</td>
<td>4</td>
<td>Protection against splashing water with increased pressure</td>
<td>4</td>
<td>Water which splashes against the enclosure from any direction with increased pressure shall not have any harmful effects or impair performance</td>
</tr>
<tr>
<td>5K</td>
<td>Protection against dust</td>
<td>5</td>
<td>Protection against high-velocity water</td>
<td>5</td>
<td>Water which is directed against the enclosure from any direction as a jet shall not have any harmful effects or impair performance</td>
</tr>
<tr>
<td>6</td>
<td>Protection against powerful water jet</td>
<td>6</td>
<td>Protection against powerful water jet</td>
<td>6</td>
<td>Water which is directed against the enclosure from any direction as a strong jet shall not have any harmful effects or impair performance</td>
</tr>
<tr>
<td>6K</td>
<td>Protection against ingress of dust</td>
<td>6</td>
<td>Protection against strong high-velocity water with increased pressure</td>
<td>6K</td>
<td>Water which is directed against the enclosure from any direction as a strong jet with increased pressure shall not have any harmful effects or impair performance</td>
</tr>
<tr>
<td>7</td>
<td>Protection against the effects of temporary immersion in water</td>
<td>7</td>
<td>Protection against the effects of temporary immersion in water</td>
<td>7</td>
<td>Water shall not penetrate in a quantity causing harmful effects or impair performance if the enclosure is immersed in water temporarily under specified pressure and time conditions</td>
</tr>
<tr>
<td>8</td>
<td>Protection against the effects of continuous immersion in water</td>
<td>8</td>
<td>Protection against the effects of continuous immersion in water</td>
<td>8</td>
<td>Water shall not penetrate in a quantity causing harmful effects if the enclosure is continuously immersed in water under conditions which shall be specified by the manufacturer</td>
</tr>
<tr>
<td>9K</td>
<td>Protection against water during high-pressure/steam-jet cleaning</td>
<td>9</td>
<td>Protection against water during high-pressure/steam-jet cleaning</td>
<td>9K</td>
<td>Water which is directed against the enclosure from any direction shall not have any harmful effects or impair performance</td>
</tr>
</tbody>
</table>
TURNED CONTACT

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

<table>
<thead>
<tr>
<th>Mating cycles</th>
<th>&gt; 5,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Copper alloy</td>
</tr>
<tr>
<td>Plating</td>
<td>1.25 µm gold over electrodeposited nickel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TERMINATION STANDARD PIN CONTACTS</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Plug</th>
<th>Receptacle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solder termination</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>PCB termination</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Information on diameters, terminal types and current-carrying capacity can be found after the inserts.
CURRENT LOAD OF TURNED CONTACTS

NOMINAL SINGLE CONTACT CURRENT LOAD FOR PIN / SLOTTED SOCKET (NOMINAL DIAMETER 0.5 mm – 2.0 mm)

<table>
<thead>
<tr>
<th>Number of loaded wires</th>
<th>Derating factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>0.75</td>
</tr>
<tr>
<td>7</td>
<td>0.65</td>
</tr>
<tr>
<td>10</td>
<td>0.55</td>
</tr>
<tr>
<td>14</td>
<td>0.5</td>
</tr>
<tr>
<td>19</td>
<td>0.45</td>
</tr>
<tr>
<td>24</td>
<td>0.4</td>
</tr>
</tbody>
</table>

UPPER LIMIT TEMPERATURE OF STANDARD CONTACTS: +125 °C.

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 derating factor. For connectors, the derating factors for multi-core cables pursuant to VDE 0298-4:2013-06 are applied. The derating 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 × 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] and derived from the derating curve.
OPERATING VOLTAGE
ACC. TO SAE AS 13441-METHOD 3001.1

The values acc. to SAE AS 13441-method 3001.1 comply with MIL-Std. 1344 – method 3001.
The inserts have been tested in mated condition and the test voltage was applied to the pin insert.

75 % of the measured break-down voltage is the basic for the further calculation. ⅓ of this value is the corresponding operating voltage.

All tests were performed at standard environment conditions (room temperature) and can be applied up to an altitude of 2,000 m. For any deviations one has to consider the reduction factor acc. to the relevant standards.

<table>
<thead>
<tr>
<th>Test voltage</th>
<th>Break-down voltage × 0.75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating voltage</td>
<td>Break-down voltage × 0.75 × 0.33</td>
</tr>
</tbody>
</table>

CAUTION
Electrical appliances: for various applications the safety requirements regarding the operating voltage is even more severe! The relevant datas in such cases for the operating voltage are the creepage and clearance distances. For any advise how to chose the proper connector please consult us and indicate the safety standard which your product has to meet.

Suitable safety precautions must be taken in order to ensure that personnel do not come into contact with live conductors during installation and operation. All entries were reviewed with maximum care before this catalogue was printed.

ODU reserves the right to make changes in accordance with the current state of the art without advance notice, and without being obligated to provide replacement deliveries or to continue production of older designs.
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 mm², while an AWG 20 strand of 19 AWG 32 wires has a cross-section of 0.616 mm².

Source: ASTM
TECHNICAL TERMS

AMBIENT TEMPERATURE
Temperature of the air or other medium in which a piece of equipment is intended to be used in [IEC 44/709/CDV:2014 (VDE 0113-1:2019-06)].

AWG
American Wire Gauge. See page 72.

BASE CURVE
A current-carrying capacity curve metrologically determined according to the method described in IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003-01) 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 catalogue.

CLEARANCE DISTANCE
The shortest distance in the air between two conductive parts.

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 page 33.

CONNECTORS
Also known as connectors without contact rating (COC): [IEC 61984:2008 (VDE 0627:2009-11)]. 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 or 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 conductor 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.

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 0110-1:2008-01).

DELIVERY FORM
Connectors can be delivered in assembled form or as individual parts.
TECHNICAL TERMS

DERATING CURVE
See page 69.

DERATING FACTOR
According to VDE 0298-4:2013-06, 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 derating factor.

Measurement method to determine the current-carrying capacity of connectors in consideration of the maximum permissible limit temperature. See page 69.

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.

LOWERMOST LIMIT TEMPERATURE
The lowest permissible temperature at which a connector may be operated.

MATERIALS (STANDARD MODEL)
See page 65.

MATING AND DEMATING FORCE
The force required to fully mate or demate pluggable elements without the influence of a coupling or locking device.

MATING CYCLES
Mechanical actuation of connectors via push and pull action. A mating cycle consists of one mating and demating action. ODU's standard value for the ODU MINI-SNAP series is 5,000 mating cycles.

MAX. CONTINUOUS CURRENT
The metrologically determined amperage at room temperature [approx. 20 °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 69.

NOMINAL VOLTAGE
The voltage which the manufacturer specifies for a connector and which the operating and performance features relate to.

OPERATING TEMPERATURE FOR ODU AMC®
Range between the uppermost and lowermost temperature limits. –51 °C to +125 °C. See page 64.

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 69.
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.

TIGHTNESS IEC 60529:2013 (VDE 0470-1:2014-09)
See protection classes on page 66.

TERMINATION CROSS-SECTION
The specified cross-sections correspond to a “fine-wire” conductor structure pursuant to DIN EN 60228:2005-09 (VDE 0295:2005-09; class 5) or a “fine-wire” conductor structure [7/19 wire] according to AWG (ASTM B258:2014).

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 68.

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

UPPERMOST LIMIT TEMPERATURE
The maximum permissible temperature at which a connector may be operated. It includes contact heating through current-carrying capacity.

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.

GENERAL NOTE
The connectors listed in this catalogue 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 catalogue 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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www.odu-connectors.com/contact

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Romania
ODU Romania Manufacturing SRL

USA
ODU North American Logistics Inc.

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