

# Data Sheet | Item Number: 231-646/129-000

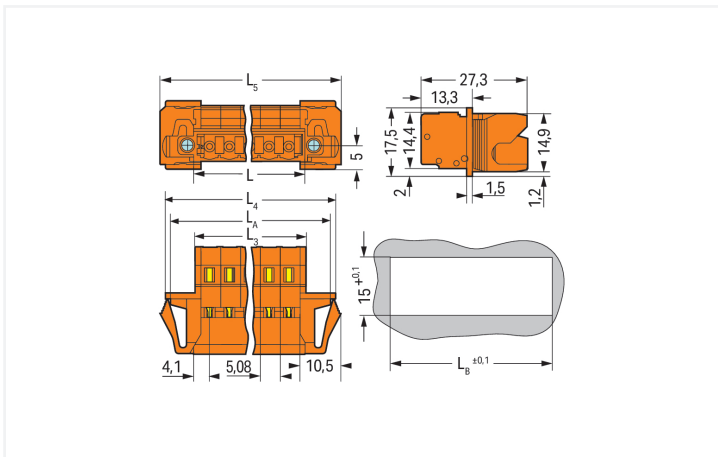
1-conductor male connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 16-pole; Snap-in flange; orange

<https://www.wago.com/231-646/129-000>



Color: ■ orange

Similar to illustration



Dimensions in mm

$L = (\text{pole no.} \times \text{pin spacing}) + 3.2 \text{ mm}$   
 $L3 = L - 0.2 \text{ mm}$   
 $L4 = L3 + 15.2 \text{ mm}$   
 $L5 = L3 + 18 \text{ mm}$   
 $LA = L3 + 12.6 \text{ mm}$   
 $LB = L3 + 13.2 \text{ mm}$

Male connector, 231 Series, 0° conductor exit to connection direction

Our male connector (item number 231-646/129-000) simplifies electrical installations. Conductors can only be connected to this male connector if their strip length is between 8 and 9 mm. Featuring one conductor terminal along with CAGE CLAMP®, this connector delivers reliable performance. Our renowned universal connection known as CAGE CLAMP® is the industry standard for connection technology and electrical interconnections. The dimensions are (102.28 x 17.5 x 27.5) mm (width x height x depth). This male connector is suitable for conductor cross sections ranging from 0.08 mm² to 2.5 mm². The contact surface is coated with tin.

## Notes

## Safety Information

The MCS – MULTI CONNECTION SYSTEM includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors must not be connected/disconnected when live or under load. When used as intended, these connectors must not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.

## Variants:

Other pole numbers  
Gold-plated or partially gold-plated contact surfaces  
Other versions (or variants) can be requested from WAGO Sales or configured at <https://configurator.wago.com/>.

## Electrical data

| Ratings per IEC/EN 60664-1      |       |       |       | Approvals per UL 1059 |       |   |       |
|---------------------------------|-------|-------|-------|-----------------------|-------|---|-------|
|                                 | III   | III   | II    | Use group             | B     | C | D     |
| Overvoltage category            | III   | III   | II    | Rated voltage         | 300 V | - | 300 V |
| Pollution degree                | 3     | 2     | 2     | Rated current         | 15 A  | - | 10 A  |
| Nominal voltage                 | 320 V | 320 V | 630 V |                       |       |   |       |
| Rated impulse withstand voltage | 4 kV  | 4 kV  | 4 kV  |                       |       |   |       |
| Rated current                   | 12 A  | 12 A  | 12 A  |                       |       |   |       |

| Approvals per UL 1977 |       | Approvals per CSA |       |   |       |
|-----------------------|-------|-------------------|-------|---|-------|
|                       | 600 V | Use group         | B     | C | D     |
| Rated voltage         | 600 V | Rated voltage     | 300 V | - | 300 V |
| Rated current         | 15 A  | Rated current     | 15 A  | - | 10 A  |

## Connection Data

|                            |    |   |  |
|----------------------------|----|---|--|
| Clamping units             | 16 | <b>Connection 1</b>                               |  |
| Total number of potentials | 16 | Connection technology                             | CAGE CLAMP®                                  |
| Number of connection types | 1  | Actuation type                                    | Operating tool                               |
| Number of levels           | 1  | Actuation direction 1                             | Operation parallel to conductor entry        |
|                            |    | Actuation direction 2                             | Operation perpendicular to conductor entry   |
|                            |    | Solid conductor                                   | 0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG |
|                            |    | Fine-stranded conductor                           | 0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG |
|                            |    | Fine-stranded conductor; with insulated ferrule   | 0.25 ... 1.5 mm <sup>2</sup>                 |
|                            |    | Fine-stranded conductor; with uninsulated ferrule | 0.25 ... 2.5 mm <sup>2</sup>                 |
|                            |    | Strip length                                      | 8 ... 9 mm / 0.31 ... 0.35 inches            |
|                            |    | Pole number                                       | 16   |
|                            |    | Conductor entry direction to mating direction     | 0°   |

## Physical data

|             |                          |
|-------------|--------------------------|
| Pin spacing | 5.08 mm / 0.2 inches     |
| Width       | 102.28 mm / 4.027 inches |
| Height      | 17.5 mm / 0.689 inches   |
| Depth       | 27.5 mm / 1.083 inches   |

### Mechanical data

|   |  |
|---|--|
| Variable coding                         | Yes                                    |
| Housing sheet thickness                 | 0.5 ... 2.5 mm / 0.02 ... 0.098 inches |
| Mounting type                           | Snap-in flange                         |
| Mounting type                           | Feed-through mounting                  |
| Anti-rotation protection                | Yes                                    |
| Suitable for through-panel applications | Yes                                    |

### Plug-in connection

|                                    |                     |
|------------------------------------|---------------------|
| Contact type (pluggable connector) | Male connector/plug |
| Connector (connection type)        | for conductor       |
| Mismating protection               | No                  |
| Locking of plug-in connection      | Threaded flange     |

### Material data

|                                    |  |
|------------------------------------|--|
| Note (material data)               | <a href="#">Information on material specifications can be found here</a> |
| Color                              | orange   |
| Material group                     | I  |
| Insulation material (main housing) | Polyamide (PA66)   |
| Flammability class per UL94        | V0   |
| Clamping spring material           | Chrome-nickel spring steel (CrNi)  |
| Contact material                   | Electrolytic copper (E <sub>cu</sub> )                                   |
| Contact Plating                    | Tin  |
| Fire load                          | 0.46 MJ  |
| Weight                             | 27.2 g   |

### Environmental requirements

|                         |                 |
|-------------------------|-----------------|
| Limit temperature range | -60 ... +100 °C |
| Processing temperature  | -35 ... +60 °C  |

### Commercial data

|                       |               |
|-----------------------|---------------|
| PU (SPU)              | 10 pcs        |
| Packaging type        | Box           |
| Country of origin     | DE            |
| GTIN                  | 4050821280095 |
| Customs tariff number | 85366930000   |

### Product Classification

|             |                      |
|-------------|----------------------|
| UNSPSC      | 39121409             |
| eCl@ss 10.0 | 27-44-03-09          |
| eCl@ss 9.0  | 27-44-03-09          |
| ETIM 9.0    | EC002638             |
| ETIM 10.0   | EC002638             |
| ECCN        | NO US CLASSIFICATION |

**Environmental Product Compliance**

|   |                                      |
|---|--------------------------------------|
| RoHS Compliance Status                    | Compliant,With Exemption             |
| RoHS Exemption                            | 6(c)                                 |
| SCIP notification number (Austria)        | 59ac947a-fcd1-40e6-a3cf-00e4187a7728 |
| SCIP notification number (Belgium)        | ed808c28-c2a4-41fd-8a8f-92084305007f |
| SCIP notification number (Bulgaria)       | 61bd4b08-6f54-4bf8-816a-a89ed2f497f7 |
| SCIP notification number (Czech Republic) | bc531f94-be2a-4cfa-b26e-1d5abfb31536 |
| SCIP notification number (Denmark)        | f84fe285-82de-4b7b-b465-2742e8f0b37c |
| SCIP notification number (Finland)        | 1eae299e-29c3-46f9-94dd-4c2eb8a5db17 |
| SCIP notification number (France)         | 0038001d-ec23-45f2-ab76-f8a1ec8d6a0b |
| SCIP notification number (Germany)        | 27e38cce-d655-4a75-ae01-79bb4f7951f2 |
| SCIP notification number (Hungary)        | bebfc51-37e2-47f3-994f-7a5438346444  |
| SCIP notification number (Italy)          | effc2c8a-30db-4a7a-86d3-ac6ce4e04de0 |
| SCIP notification number (Netherlands)    | a543b0d4-766b-4f65-af0c-88098b893a69 |
| SCIP notification number (Poland)         | 1b80ba95-8181-4308-8c6a-575a06966a2f |
| SCIP notification number (Romania)        | bbb99880-655b-475f-ae8c-a173d1ec9783 |
| SCIP notification number (Sweden)         | 5cb6999b-a38a-4866-b859-da1d018784d3 |

**Approvals / Certificates**

**General approvals**

**Approvals for marine applications**



| Approval                                | Standard  | Certificate Name |
|---|-----------|------------------|
| CB<br>DEKRA Certification B.V.          | IEC 61984 | NL-113351        |
| CSA<br>DEKRA Certification B.V.         | C22.2     | 1466354          |
| cURus<br>Underwriters Laboratories Inc. | UL 1059   | E45172           |
| KEMA/KEUR<br>DEKRA Certification B.V.   | EN 61984  | 71-130478 REV.1  |
| UR<br>Underwriters Laboratories Inc.    | UL 1977   | E45171           |

| Approval                  | Standard  | Certificate Name |
|---------------------------|-----------|------------------|
| BV<br>Bureau Veritas S.A. | IEC 60998 | 11915/E0 BV      |

**Downloads**

**Environmental Product Compliance**

**Compliance Search**

Environmental Product Compliance  
231-646/129-000

## Documentation

### Additional Information

|                   |            |                   |                   |
|-------------------|------------|-------------------|-------------------|
| Technical Section | 03.04.2019 | pdf<br>2027.26 KB | <a href="#">↓</a> |
|-------------------|------------|-------------------|-------------------|

## CAD/CAE-Data

| CAD data  | CAE data  |
|---|---|
| 2D/3D Models<br>231-646/129-000 <a href="#">↓</a> | ZUKEN Portal<br>231-646/129-000 <a href="#">↓</a> |

## 1 Compatible Products

### 1.1 System counterpart

#### 1.1.1 Female connector/socket



**Item No.:** [231-316/107-000](#)

1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 16-pole; Screw flange; orange

## 1.2 Optional Accessories

### 1.2.1 Coding

#### 1.2.1.1 Coding



**Item No.:** [231-129](#)

Coding key; snap-on type; light gray

### 1.2.2 Cover

#### 1.2.2.1 Cover



**Item No.:** [231-669](#)

Lockout caps; for covering unused clamping units; orange

1.2.3 Ferrule

1.2.3.1 Ferrule



**Item No.: 216-301**  
 Ferrule; Sleeve for 0.25 mm<sup>2</sup> / AWG 24; insulated; electro-tin plated; yellow



**Item No.: 216-302**  
 Ferrule; Sleeve for 0.34 mm<sup>2</sup> / 22 AWG; insulated; electro-tin plated; light turquoise



**Item No.: 216-201**  
 Ferrule; Sleeve for 0.5 mm<sup>2</sup> / 20 AWG; insulated; electro-tin plated; electrolytic copper; acc. to DIN 46228, Part 4/09.90; white



**Item No.: 216-241**  
 Ferrule; Sleeve for 0.5 mm<sup>2</sup> / 20 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; white



**Item No.: 216-141**  
 Ferrule; Sleeve for 0.5 mm<sup>2</sup> / 20 AWG; un-insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92



**Item No.: 216-101**  
 Ferrule; Sleeve for 0.5 mm<sup>2</sup> / AWG 22; un-insulated; electro-tin plated; silver-colored



**Item No.: 216-242**  
 Ferrule; Sleeve for 0.75 mm<sup>2</sup> / 18 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; gray



**Item No.: 216-262**  
 Ferrule; Sleeve for 0.75 mm<sup>2</sup> / 18 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; gray



**Item No.: 216-202**  
 Ferrule; Sleeve for 0.75 mm<sup>2</sup> / 18 AWG; insulated; electro-tin plated; gray



**Item No.: 216-142**  
 Ferrule; Sleeve for 0.75 mm<sup>2</sup> / 18 AWG; un-insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92



**Item No.: 216-102**  
 Ferrule; Sleeve for 0.75 mm<sup>2</sup> / AWG 20; un-insulated; electro-tin plated; silver-colored



**Item No.: 216-243**  
 Ferrule; Sleeve for 1 mm<sup>2</sup> / AWG 18; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; red



**Item No.: 216-263**  
 Ferrule; Sleeve for 1 mm<sup>2</sup> / AWG 18; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; red



**Item No.: 216-203**  
 Ferrule; Sleeve for 1 mm<sup>2</sup> / AWG 18; insulated; electro-tin plated; red



**Item No.: 216-103**  
 Ferrule; Sleeve for 1 mm<sup>2</sup> / AWG 18; un-insulated; electro-tin plated



**Item No.: 216-143**  
 Ferrule; Sleeve for 1 mm<sup>2</sup> / AWG 18; un-insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92



**Item No.: 216-204**  
 Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; insulated; electro-tin plated; black



**Item No.: 216-244**  
 Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; black



**Item No.: 216-264**  
 Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; black



**Item No.: 216-284**  
 Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; black



**Item No.: 216-144**  
 Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; un-insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92; silver-colored



**Item No.: 216-104**  
 Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; un-insulated; electro-tin plated; silver-colored



**Item No.: 216-106**  
 Ferrule; Sleeve for 2.5 mm<sup>2</sup> / AWG 14; un-insulated; electro-tin plated; silver-colored

1.2.4 Insulation stop

1.2.4.1 Insulation stop



**Item No.: 231-670**  
 Insulation stop; 0.08-0.2 mm<sup>2</sup> / 0.2 mm<sup>2</sup> "s"; white



**Item No.: 231-671**  
 Insulation stop; 0.25 - 0.5 mm<sup>2</sup>; light gray



**Item No.: 231-672**  
 Insulation stop; 0.75 - 1 mm<sup>2</sup>; dark gray

## 1.2.5 Jumper

### 1.2.5.1 Jumper



**Item No.: 231-910**

Jumper; for conductor entry; 10-way; insulated; gray



**Item No.: 231-902**

Jumper; for conductor entry; 2-way; insulated; gray



**Item No.: 231-903**

Jumper; for conductor entry; 3-way; insulated; gray



**Item No.: 231-905**

Jumper; for conductor entry; 5-way; insulated; gray



**Item No.: 231-907**

Jumper; for conductor entry; 7-way; insulated; gray

## 1.2.6 Marking

### 1.2.6.1 Marking strip



**Item No.: 210-331/508-103**

Marking strips; as a DIN A4 sheet; MARKED; 1-12 (200x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white



**Item No.: 210-332/508-202**

Marking strips; as a DIN A4 sheet; MARKED; 1-16 (160x); Height of marker strip: 3 mm; Strip length 182 mm; Horizontal marking; Self-adhesive; white



**Item No.: 210-332/508-205**

Marking strips; as a DIN A4 sheet; MARKED; 1-32 (80x); Height of marker strip: 3 mm; Strip length 182 mm; Horizontal marking; Self-adhesive; white



**Item No.: 210-331/508-104**

Marking strips; as a DIN A4 sheet; MARKED; 13-24 (200x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white



**Item No.: 210-332/508-204**

Marking strips; as a DIN A4 sheet; MARKED; 17-32 (160x); Height of marker strip: 3 mm; Strip length 182 mm; Horizontal marking; Self-adhesive; white



**Item No.: 210-332/508-206**

Marking strips; as a DIN A4 sheet; MARKED; 33-48 (160x); Height of marker strip: 3 mm; Strip length 182 mm; Horizontal marking; Self-adhesive; white

## 1.2.7 Strain relief

### 1.2.7.1 Strain relief housing



**Item No.: 232-646**

Strain relief housing; for female and male connectors; 2 parts; Pin spacing 5.08 mm; 16-pole; orange

## 1.2.8 Tool

### 1.2.8.1 Operating tool



**Item No.: 210-720**

Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured



**Item No.: 210-657**

Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; short; multicoloured



**Item No.: 209-132**

Operating tool; for connecting comb-style jumper bar; made of insulating material; 2-way; natural



**Item No.: 280-440**

Operating tool; made of insulating material; 10-way; white



**Item No.: 209-130**

Operating tool; made of insulating material; 1-way; for 264 Series (1-/2-way), 280, 281 Series (up to 3-way); natural



**Item No.: 231-291**

Operating tool; made of insulating material; 1-way; loose; red



**Item No.: 231-131**

Operating tool; made of insulating material; 1-way; loose; white



**Item No.: 280-432**

Operating tool; made of insulating material; 2-way; white

### 1.2.8.1 Operating tool



**Item No.: 280-433**

Operating tool; made of insulating material; 3-way; white



**Item No.: 280-434**

Operating tool; made of insulating material; 4-way; white



**Item No.: 280-435**

Operating tool; made of insulating material; 5-way; gray



**Item No.: 280-436**

Operating tool; made of insulating material; 6-way; white



**Item No.: 280-437**

Operating tool; made of insulating material; 7-way; white

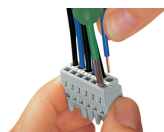


**Item No.: 280-438**

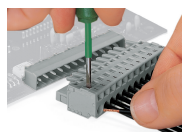
Operating tool; made of insulating material; 8-way; white

### Installation Notes

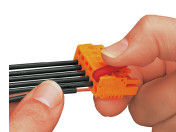
#### Conductor termination



Inserting a conductor via 3.5 mm screwdriver – CAGE CLAMP® actuation parallel to conductor entry.



Inserting a conductor via 3.5 mm screwdriver – CAGE CLAMP® actuation perpendicular to conductor entry.

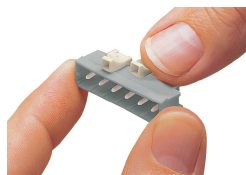


Inserting a conductor into CAGE CLAMP® unit via operating tool (231-291).



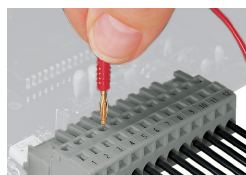
Inserting a conductor via operating tool.

### Coding



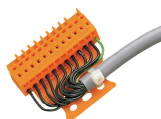
Coding a male header – fitting coding key (s).

### Testing



Testing – female connector with CAGE CLAMP®  
Integrated test ports for testing perpendicular to conductor entry via 2 or 2.3 mm Ø test plug

### Installation



Male connector with strain relief plate



Strain relief housing shown with a male connector equipped with CAGE CLAMP®

Marking



Labeling via direct marking or self-adhesive strips.