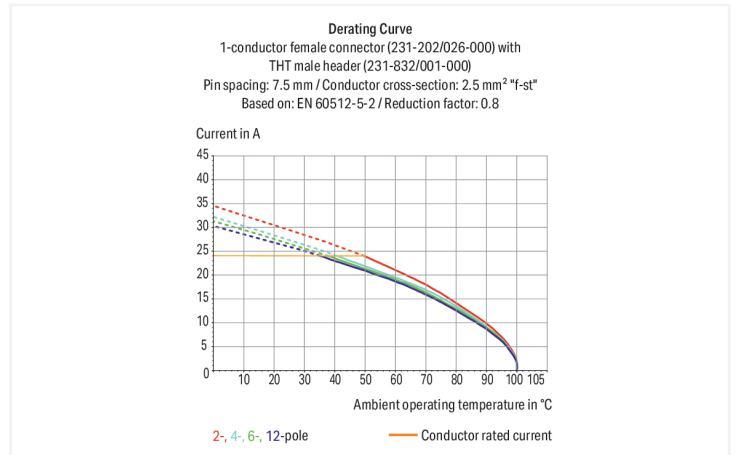


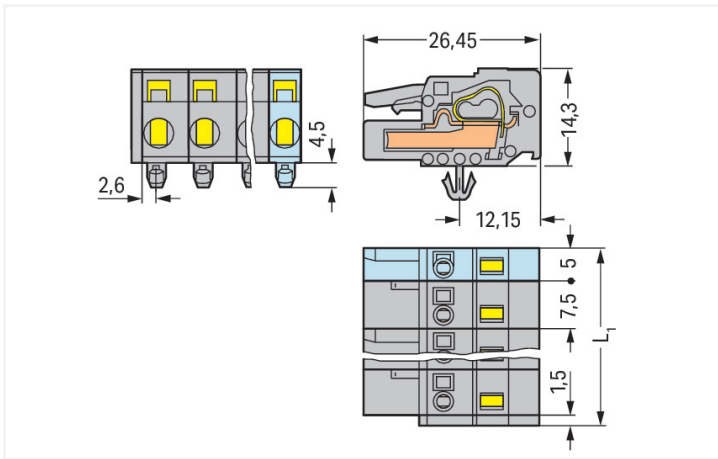
## Data Sheet | Item Number: 231-209/008-000

1-conductor female connector; CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 7.5 mm; 9-pole;  
Snap-in mounting feet; gray

<https://www.wago.com/231-209/008-000>



Color: ■ gray



Dimensions in mm

L = (pole no. - 1) x pin spacing + 5 mm + 1.5 mm 2- to 3-pole female connectors – one latch only

Female connector, 231 Series, gray

This female connector (item number 231-209/008-000) provides hassle-free electrical installations. Conductors should only be connected to this female connector if their strip length is between 8 and 9 mm. Featuring one conductor terminal along with CAGE CLAMP®, this product outperforms the competition. Our highly-rated and maintenance-free CAGE CLAMP® connection makes it easy to connect all conductor types without having to prepare the conductor. For example, you don't need to crimp ferrules. Dimensions: (66.5 x 18.8 x 26.45) mm (width x height x depth). Depending on the type of conductor, this female connector is suitable for conductor cross sections ranging from 0.08 mm<sup>2</sup> to 2.5 mm<sup>2</sup>. Tin is used for coating the contact surfaces.

## 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:

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 |       |        |
|---------------------------------|----------------|-------|--------|
| Overvoltage category            | III            | III   | II     |
| Pollution degree                | 3              | 2     | 2      |
| Nominal voltage                 | 500 V          | 630 V | 1000 V |
| Rated impulse withstand voltage | 6 kV           | 6 kV  | 6 kV   |
| Rated current                   | 16 A           | 16 A  | 16 A   |

| Approvals per | UL 1059 |   |       |
|---------------|---------|---|-------|
| Use group     | B       | C | D     |
| Rated voltage | 300 V   | - | 300 V |
| Rated current | 15 A    | - | 10 A  |

| Approvals per | UL 1977 |
|---------------|---------|
| Rated voltage | 600 V   |
| Rated current | 15 A    |

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

## Connection Data

|                            |   |
|----------------------------|---|
| Clamping units             | 9 |
| Total number of potentials | 9 |
| Number of connection types | 1 |
| Number of levels           | 1 |

## Connection 1

|   |  |
|---|--|
| Connection technology                             | CAGE CLAMP®                                  |
| Actuation type                                    | Operating tool                               |
| 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                                       | 9  |
| Conductor entry direction to mating direction     | 0°   |

## Physical data

|  |                          |
|--|--------------------------|
| Pin spacing  | 7.5 mm / 0.295 inches    |
| Width  | 66.5 mm / 2.618 inches   |
| Height   | 18.8 mm / 0.74 inches    |
| Height from the surface  | 14.3 mm / 0.563 inches   |
| Depth  | 26.45 mm / 1.041 inches  |
| Drilled hole diameter for snap-in mounting foot with tolerance | 3.5 <sup>(+0.1)</sup> mm |

### Mechanical data

|                          |   |
|--------------------------|---|
| Variable coding          | Yes                                     |
| Housing sheet thickness  | 0.6 ... 1.2 mm / 0.024 ... 0.047 inches |
| Mounting type            | Snap-in foot                            |
| Mounting type            | Panel mounting                          |
| Anti-rotation protection | Yes                                     |

### Plug-in connection

|                                    |                         |
|------------------------------------|-------------------------|
| Contact type (pluggable connector) | Female connector/socket |
| Connector (connection type)        | for conductor           |
| Mismating protection               | No                      |

### Material data

|                                    |  |
|------------------------------------|--|
| Note (material data)               | <a href="#">Information on material specifications can be found here</a> |
| Color                              | gray   |
| Material group                     | I  |
| Insulation material (main housing) | Polyamide (PA66)   |
| Flammability class per UL94        | V0   |
| Clamping spring material           | Chrome-nickel spring steel (CrNi)  |
| Contact material                   | Copper alloy   |
| Contact Plating                    | Tin  |
| Fire load                          | 0.283 MJ   |
| Weight                             | 18.9 g   |

### Environmental requirements

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

### Environmental Testing

|   |   |
|---|---|
| Test specification:<br>Railway applications –<br>Rolling stock –<br>Electronic equipment            | DIN EN 50155 (VDE 0115-200):2022-06                 |
| Test procedure:<br>Railway applications –<br>Rolling stock equipment –<br>Vibration and shock tests | DIN EN 61373 (VDE 0115-0106):2011-04                |
| Spectrum/Mounting location  | Service life test, Category 1, Class A/B            |
| Functional test with noise-like oscillations  | Test passed according to Section 8 of the standard  |
| Frequency   | $f_1 = 5 \text{ Hz}$ to $f_2 = 150 \text{ Hz}$      |
| Acceleration  | 0.101g (highest test level used for all axes)       |
| Test duration per axis  | 10 min.   |
| Test directions   | X, Y and Z axes                                     |
| Monitoring of contact faults and interruptions  | Passed  |
| Voltage drop measurement before and after each axis   | Passed  |
| Simulated service life test through increased levels of noise-like oscillations                     | Test passed according to Section 9 of the standard  |
| Frequency   | $f_1 = 5 \text{ Hz}$ to $f_2 = 150 \text{ Hz}$      |
| Acceleration  | 0.572g (highest test level used for all axes)       |
| Test duration per axis  | 5 h   |
| Test directions   | X, Y and Z axes                                     |
| Extended testing: Monitoring of contact faults and interruptions                                    | Passed  |
| Extended testing: Voltage drop measurement before and after each axis                               | Passed  |
| Shock test  | Test passed according to Section 10 of the standard |

**Environmental Testing**

|   |   |
|---|---|
| Shock pulse form  | Half sine                                 |
| Acceleration  | 5g (highest test level used for all axes) |
| Shock duration  | 30 ms                                     |
| Number of shocks (per axis)   | 3 pos. und 3 neg.                         |
| Test directions   | X, Y and Z axes                           |
| Extended testing: Monitoring of contact faults and interruptions      | Passed                                    |
| Extended testing: Voltage drop measurement before and after each axis | Passed                                    |
| Vibration and shock stress for rolling stock equipment                | Passed                                    |

**Commercial data**

|                       |                        |
|-----------------------|------------------------|
| Product Group         | 3 (Multi Conn. System) |
| PU (SPU)              | 25 pcs                 |
| Packaging type        | Box                    |
| Country of origin     | DE                     |
| GTIN                  | 4044918374903          |
| Customs tariff number | 85366990990            |

**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, No Exemption |
|------------------------|-------------------------|

**Approvals / Certificates**

**General approvals**



| Approval                              | Standard  | Certificate Name |
|---------------------------------------|-----------|------------------|
| CB<br>DEKRA Certification B.V.        | IEC 61984 | NL-113351        |
| CSA<br>DEKRA Certification B.V.       | C22.2     | 1466354          |
| KEMA/KEUR<br>DEKRA Certification B.V. | EN 61984  | 71-130478 REV.1  |
| UR<br>Underwriters Laboratories Inc.  | UL 1977   | E 45171          |
| UR<br>Underwriters Laboratories Inc.  | UL 1059   | E45172           |

**Declarations of conformity and manufacturer's declarations**



| Approval                      | Standard | Certificate Name |
|-------------------------------|----------|------------------|
| Railway<br>WAGO GmbH & Co. KG | -        | Railway Ready    |

**Approvals for marine applications**



| Approval                                | Standard  | Certificate Name  |
|---|-----------|-------------------|
| ABS<br>American Bureau of Ship-<br>ping | -         | 24-0095975-PDA    |
| BV<br>Bureau Veritas S.A.               | IEC 60998 | 11915/E0 BV       |
| DNV<br>DNV GL SE                        | -         | TAE000016Z        |
| PRS<br>Polski Rejestr Statków           | -         | TE/1095/880590/23 |

**Downloads**

**Environmental Product Compliance**

| Compliance Search                                      |
|--|
| Environmental Product<br>Compliance<br>231-209/008-000 |

**Documentation**

| Additional Information                               |
|--|
| Technical Section<br>03.04.2019<br>pdf<br>2027.26 KB |

**CAD/CAE-Data**

| CAD data                        |
|---------------------------------|
| 2D/3D Models<br>231-209/008-000 |

| CAE data                             |
|--------------------------------------|
| EPLAN Data Portal<br>231-209/008-000 |
| ZUKEN Portal<br>231-209/008-000      |

**1 Compatible Products**

**1.1 System counterpart**

**1.1.1 Male connector/plug**



**Item No.: 731-609**  
1-conductor male connector; CAGE CLAMP®;  
2.5 mm<sup>2</sup>; Pin spacing 7.5 mm; 9-pole; 2,50  
mm<sup>2</sup>; gray

## 1.2 Optional Accessories

### 1.2.1 Cover

#### 1.2.1.1 Cover



**Item No.: 231-668**

Lockout caps; for covering unused clamping units; gray

### 1.2.2 Ferrule

#### 1.2.2.1 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.: 216-101**

Ferrule; Sleeve for 0.5 mm<sup>2</sup> / AWG 22; un-insulated; electro-tin plated; silver-colored



**Item No.: 216-202**

Ferrule; Sleeve for 0.75 mm<sup>2</sup> / 18 AWG; insulated; electro-tin plated; gray



**Item No.: 216-102**

Ferrule; Sleeve for 0.75 mm<sup>2</sup> / 18 AWG; un-insulated; electro-tin plated; silver-colored



**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.: 216-204**

Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; insulated; electro-tin plated; black



**Item No.: 216-104**

Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; un-insulated; electro-tin plated; silver-colored

### 1.2.3 Installation

#### 1.2.3.1 Mounting accessories



**Item No.: 209-137**

Mounting adapter; can be used as end stop; 6.5 mm wide; gray

### 1.2.4 Insulation stop

#### 1.2.4.1 Insulation stop



**Item No.: 231-673**

Insulation stop; 0.08-0.2 mm<sup>2</sup> / 0.2 mm<sup>2</sup> "s"; white



**Item No.: 231-674**

Insulation stop; 0.25 - 0.5 mm<sup>2</sup>; light gray



**Item No.: 231-675**

Insulation stop; 0.75 - 1 mm<sup>2</sup>; dark gray

## 1.2.5 Marking

### 1.2.5.1 Marking strip



**Item No.: 210-331/750-202**

Marking strips; as a DIN A4 sheet; MARKED; 1-16 (100x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white

**Item No.: 210-332/750-020**

Marking strips; as a DIN A4 sheet; MARKED; 1-20 (80x); Height of marker strip: 3 mm; Strip length 182 mm; Horizontal marking; Self-adhesive; white

## 1.2.6 Mounting adapter

### 1.2.6.1 Mounting accessories



**Item No.: 209-148**

Multi mounting adapter; for female and male connectors; 25 mm wide; 3 parts; gray

## 1.2.7 Test and measurement

### 1.2.7.1 Testing accessories



**Item No.: 210-136**

Test plug; 2 mm Ø; with 500 mm cable; red

**Item No.: 231-662**

Test plugs for female connectors; for 7.5 mm and 7.62 mm pin spacing; 2,50 mm<sup>2</sup>; light gray

## 1.2.8 Tool

### 1.2.8.1 Operating tool



**Item No.: 231-231**

Combination operating tool; red

**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.: 231-291**

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



**Item No.: 231-131**

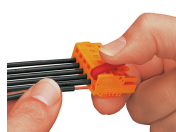
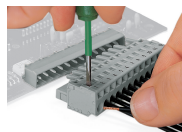
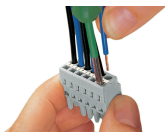
Operating tool; made of insulating material; 1-way; loose; white

**Item No.: 231-159**

Operating tool; natural

## 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).

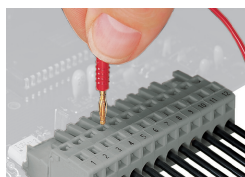
Inserting a conductor via operating tool.

### Coding



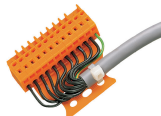
Coding a female connector by removing coding finger(s).

### Testing

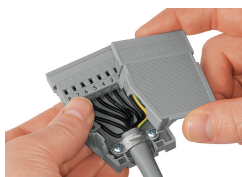


Testing – female connector with CAGE CLAMP®  
Integrated test ports for testing perpendicular to conductor entry via 2 or 2.3 mm Ø test plug

### Installation

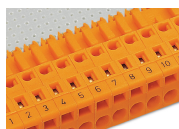


Male connector with strain relief plate



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

### Marking



Labeling via direct marking or self-adhesive strips.

Subject to changes. Please also observe the further product documentation!

Current addresses can be found at: [www.wago.com](http://www.wago.com)