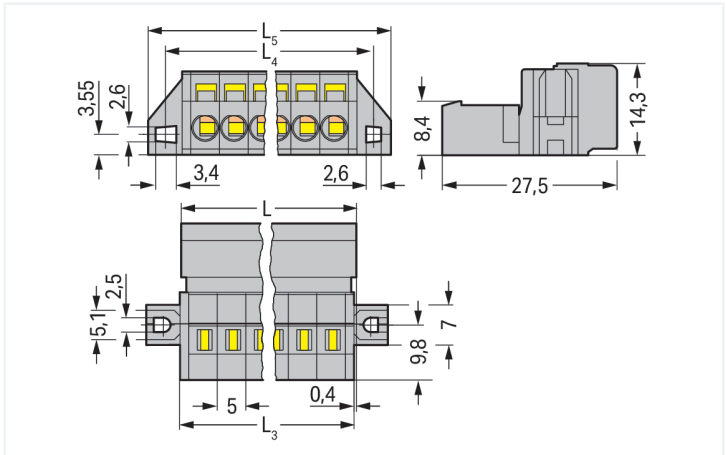
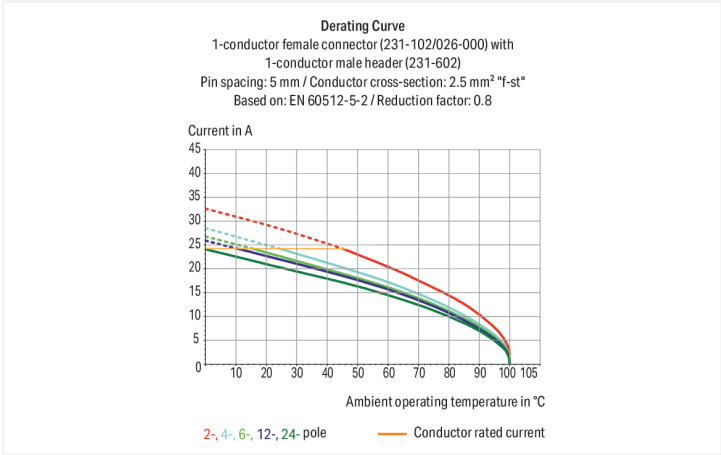




Color: ■ gray



Dimensions in mm  
 $L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$   
 $L3 = L - 0.2 \text{ mm}$   
 $L4 = L3 + 5.8 \text{ mm}$   
 $L5 = L3 + 11.8 \text{ mm}$



Stiftleiste Serie 231 mit Betätigungswerkzeug

Bei dieser Stiftleiste (Artikelnummer 231-617/019-000) ist eine ordentliche Elektroinstallation das Hauptaugenmerk. Unsere Leiterplatten-Steckverbinder ermöglichen Ihnen die größtmögliche Flexibilität bei verschiedenen Montagearten. Bei dieser Stiftleiste ist für den Leiteranschluss eine Abisolierlänge im Bereich von 8 bis 9 mm erforderlich. Dieses Produkt verwendet die CAGE CLAMP®-Technologie. Der zuverlässige und wartungsfreie CAGE CLAMP® Universalanschluss bietet die Möglichkeit, alle Arten von Leitern mit einer Käfigzugfeder anzuschließen, ohne, dass eine Vorbehandlung der Leiter erforderlich ist. Das Aufcrimpen von Aderendhülsen kann somit entfallen. In Breite x Höhe x Tiefe sind die Maße (99,8 x 14,3 x 27,5) mm. In Abhängigkeit von der Leiterart ist die Stiftleiste ausgelegt für Leiterquerschnitte von 0,08 mm² bis 2,5 mm². Für die Kontaktoberfläche wurde Zinn verwendet. Für diese Stiftleiste/Stecker erfolgt die Betätigung per Betätigungswerkzeug. Das "Multi Connection System" – MCS von WAGO ist das vielfältige Steckverbindersystem mit überzeugenden Lösungen für Ihre Anwendungen.

| 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<br>Gold-plated or partially gold-plated contact surfaces<br>Other versions (or variants) can be requested from WAGO Sales or configured at <a href="https://configurator.wago.com/">https://configurator.wago.com/</a> .                                                                                                                                                                             |



Electrical data

| Ratings per          | IEC/EN 60664-1 |       |       |
|----------------------|----------------|-------|-------|
| Overvoltage category | III            | III   | II    |
| Pollution degree     | 3              | 2     | 2     |
| Nominal voltage      | 320 V          | 320 V | 630 V |
| Rated surge voltage  | 4 kV           | 4 kV  | 4 kV  |
| Rated current        | 12 A           | 12 A  | 12 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             | 17 |
| Total number of potentials | 17 |
| 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 mm² / 28 ... 12 AWG           |
| Fine-stranded conductor                           | 0.08 ... 2.5 mm² / 28 ... 12 AWG           |
| Fine-stranded conductor; with insulated ferrule   | 0.25 ... 1.5 mm²                           |
| Fine-stranded conductor; with uninsulated ferrule | 0.25 ... 2.5 mm²                           |
| Strip length                                      | 8 ... 9 mm / 0.31 ... 0.35 inches          |
| Pole number                                       | 17                                         |
| Conductor entry direction to mating direction     | 0°                                         |

Physical data

|             |                        |
|-------------|------------------------|
| Pin spacing | 5 mm / 0.197 inches    |
| Width       | 99.8 mm / 3.929 inches |
| Height      | 14.3 mm / 0.563 inches |
| Depth       | 27.5 mm / 1.083 inches |

Mechanical data

|                          |                                         |
|--------------------------|-----------------------------------------|
| Variable coding          | Yes                                     |
| Mounting type            | Mounting flange                         |
| Mounting type            | Feed-through mounting<br>Panel mounting |
| Anti-rotation protection | Yes                                     |



| Plug-in connection                 |                     |
|------------------------------------|---------------------|
| Contact type (pluggable connector) | Male connector/plug |
| 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                   | Electrolytic copper (E <sub>Cu</sub> )                                   |
| Contact Plating                    | Tin                                                                      |
| Fire load                          | 0.468 MJ                                                                 |
| Weight                             | 26.2 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 <sub>1</sub> = 5 Hz to f <sub>2</sub> = 150 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 <sub>1</sub> = 5 Hz to f <sub>2</sub> = 150 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 |
| 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                                              |



| Environmental Testing                                                 |        |  |
|-----------------------------------------------------------------------|--------|--|
| 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)              | 10 pcs                 |  |
| Packaging type        | Box                    |  |
| Country of origin     | DE                     |  |
| GTIN                  | 4044918259002          |  |
| 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 8.0               | 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                     |
| UL<br>Underwriters Laboratories Inc.  | UL 1977   | E45171                              |
| UL<br>Underwriters Laboratories Inc.  | UL 1059   | UL-US-<br>L45172-6187117-81111991-1 |

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/D0 BV      |

Approvals for marine applications

|                  |   |            |
|------------------|---|------------|
| DNV<br>DNV GL SE | - | TAE000016Z |
|------------------|---|------------|



Downloads

Environmental Product Compliance

Compliance Search

Environmental Product Compliance  
231-617/019-000

↓

Documentation

Additional Information

Technical Section03.04.2019pdf2027.26 KB

↓

CAD/CAE-Data

CAD data

2D/3D Models  
231-617/019-000

↓

CAE data

EPLAN Data Portal  
231-617/019-000

↓

ZUKEN Portal  
231-617/019-000

↓

1 Compatible Products

1.1 System counterpart

1.1.1 Female connector/socket



[Item No.: 231-117/026-000](#)  
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 17-pole; gray



[Item No.: 232-247](#)  
THT female header; angled; Pin spacing 5 mm; 17-pole; 0.6 x 1.0 mm solder pin; gray



[Item No.: 232-147](#)  
THT female header; straight; Pin spacing 5 mm; 17-pole; 0.6 x 1.0 mm solder pin; gray

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.: 231-668**  
Lockout caps; for covering unused clamping units; gray

1.2.3 Ferrule

1.2.3.1 Ferrule



**Item No.: 216-301**  
Ferrule; Sleeve for 0.25 mm² / AWG 24; insulated; electro-tin plated; yellow



**Item No.: 216-302**  
Ferrule; Sleeve for 0.34 mm² / 22 AWG; insulated; electro-tin plated; light turquoise



**Item No.: 216-201**  
Ferrule; Sleeve for 0.5 mm² / 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 mm² / 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 mm² / 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 mm² / AWG 22; un-insulated; electro-tin plated; silver-colored



**Item No.: 216-242**  
Ferrule; Sleeve for 0.75 mm² / 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 mm² / 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 mm² / 18 AWG; insulated; electro-tin plated; gray



**Item No.: 216-142**  
Ferrule; Sleeve for 0.75 mm² / 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 mm² / AWG 20; un-insulated; electro-tin plated; silver-colored



**Item No.: 216-243**  
Ferrule; Sleeve for 1 mm² / 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 mm² / 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 mm² / AWG 18; insulated; electro-tin plated; red



**Item No.: 216-103**  
Ferrule; Sleeve for 1 mm² / AWG 18; un-insulated; electro-tin plated



**Item No.: 216-143**  
Ferrule; Sleeve for 1 mm² / 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 mm² / AWG 16; insulated; electro-tin plated; black



**Item No.: 216-244**  
Ferrule; Sleeve for 1.5 mm² / 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 mm² / 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 mm² / 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 mm² / 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 mm² / AWG 16; un-insulated; electro-tin plated; silver-colored



**Item No.: 216-106**  
Ferrule; Sleeve for 2.5 mm² / AWG 14; un-insulated; electro-tin plated; silver-colored



1.2.4 Installation

1.2.4.1 Mounting accessories



**Item No.: 231-295**  
Screw with nut



**Item No.: 231-195**  
Screw with nut; M2x12; for fixing element



**Item No.: 209-147**  
Self-tapping screw



**Item No.: 231-194**  
Self-tapping screw; B 2.2x13, fixing hole 1.8 mm Ø

1.2.5 Insulation stop

1.2.5.1 Insulation stop



**Item No.: 231-670**  
Insulation stop; 0.08-0.2 mm² / 0.2 mm² "s"; white



**Item No.: 231-671**  
Insulation stop; 0.25 - 0.5 mm²; light gray



**Item No.: 231-672**  
Insulation stop; 0.75 - 1 mm²; dark gray

1.2.6 Jumper

1.2.6.1 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

1.2.7 Marking

1.2.7.1 Marking strip



**Item No.: 210-331/500-103**  
Marking strips; as a DIN A4 sheet; MARKED; 1-12 (300x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white



**Item No.: 210-332/500-202**  
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.: 210-332/500-205**  
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.: 210-331/500-104**  
Marking strips; as a DIN A4 sheet; MARKED; 13-24 (300x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white



**Item No.: 210-332/500-204**  
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.: 210-332/500-206**  
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



1.2.8 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.: 209-132**  
Operating tool; for connecting comb-style jumper bar; made of insulating material; 2-way; natural



**Item No.: 210-250**  
Operating tool; for MCS MINI and MIDI with CAGE CLAMP® connection; red



**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



**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



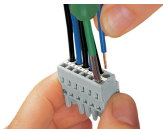
**Item No.: 280-438**  
Operating tool; made of insulating material; 8-way; white



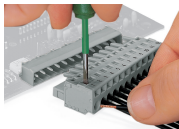
**Item No.: 231-159**  
Operating tool; natural

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.

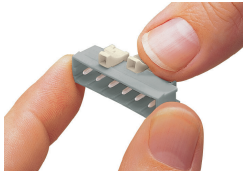


Inserting a conductor into CAGE CLAMP® unit via operating tool (231-291).



Inserting a conductor via operating tool.

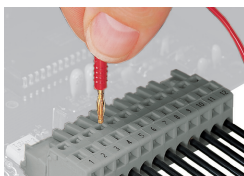
Coding



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



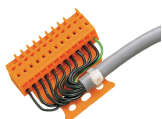
## Testing



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

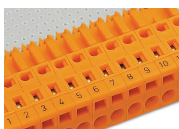


Male connector with strain relief plate



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

## Marking



Labeling via direct marking or self-adhesive strips.