

Color: ■ gray

Female connector, 2022 Series, operating tool

Error-free electrical installations are guaranteed with this female connector (item number 2022-181). Pluggable rail-mount terminal blocks are primarily found in switchgear units and control systems, most notably in railroad technology. These innovative systems combine the benefits of rail-mount terminal blocks and connectors for a flexible and reliable wiring system. You also have the option of pre-assembling installations, which not only makes production but also installation, operation, and maintenance more efficient and cost-effective. This pluggable rail-mount terminal block has a rated voltage of 690 V and can handle currents up to 24 A. Conductors can only be connected to this female connector if their strip length is between 10 mm and 12 mm. This product features conductor terminals and utilizes Push-in CAGE CLAMP®. Our Push-in CAGE CLAMP® is a universal, maintenance-free connection solution for all conductor types, boasting a key feature: It allows direct insertion of both solid and fine-stranded conductors with ferrules without needing tools. No preparation is required; for example, crimping the conductor's ferrule is not necessary. The item's dimensions are 5.2 x 40.5 x 22.4 mm (width x height x depth). This female connector is suitable for conductor cross sections ranging from 0.25 mm² to 4 mm². The single potential can connect one pole using one clamping point. The gray housing is made of polyamide (PA66) for insulation. An operating tool is used to operate this female connector/socket. The front-entry wiring makes it possible to connect copper conductors.

| Notes | |
|--------------------|---|
| Safety Information | According to EN 61984, pluggable connectors without current interrupting capacity must not be mated or unmated when live or under load. |

| Electrical data | | | | |
|---|--|-----------------|-------|----|
| Ratings per | | IEC/EN 61984 | | |
| Overvoltage category | | III | III | II |
| Pollution degree | | 3 | 2 | 2 |
| Nominal voltage | | 690 V | - | - |
| Rated surge voltage | | 6 kV | - | - |
| Rated current | | 24 A | - | - |
| Current at conductor cross-section (max.) mm² | | 32 A | - | - |
| Approvals per | | UL 1059 | | |
| Use group | | B | C | D |
| Rated voltage | | 600 V | 600 V | - |
| Rated current | | 20 A | 20 A | - |
| Approvals per | | CSA 22.2 No 158 | | |
| Use group | | B | C | D |
| Rated voltage | | - | 600 V | - |
| Rated current | | - | 20 A | - |



| Connection data | | | |
|----------------------------|---|--|---|
| Clamping units | 1 | Connection 1 | |
| Total number of potentials | 1 | Connection technology | Push-in CAGE CLAMP® |
| | | Actuation type | Operating tool |
| | | Connectable conductor materials | Copper |
| | | Nominal cross-section | 2.5 mm² |
| | | Solid conductor | 0.25 ... 4 mm² / 22 ... 12 AWG |
| | | Solid conductor; push-in termination | 0.75 ... 4 mm² / 18 ... 12 AWG |
| | | Fine-stranded conductor | 0.25 ... 4 mm² / 22 ... 12 AWG |
| | | Fine-stranded conductor; with insulated ferrule | 0.25 ... 2.5 mm² / 22 ... 14 AWG |
| | | Fine-stranded conductor; with ferrule; push-in termination | 1 ... 2.5 mm² / 18 ... 14 AWG |
| | | Note (conductor cross-section) | Depending on the conductor characteristic, a conductor with a smaller cross-section can also be inserted via push-in termination. |
| | | Strip length | 10 ... 12 mm / 0.39 ... 0.47 inches |
| | | Pole number | 1 |
| | | Wiring direction | Front-entry wiring |

| Physical data | | |
|---------------|------------------------|--|
| Width | 5.2 mm / 0.205 inches | |
| Height | 40.5 mm / 1.594 inches | |
| Depth | 22.4 mm / 0.882 inches | |

| Mechanical data | | |
|--------------------------|--------------|--|
| Variable coding | Yes | |
| Marking level | Side marking | |
| Anti-rotation protection | Yes | |

| Plug-in connection | | |
|--------------------------------------|-------------------------|--|
| Contact type (pluggable connector) | Female connector/socket | |
| Connector (connection type) | for conductor | |
| Mismating protection | No | |
| Plugging without loss of pin spacing | Yes | |

| Material data | | |
|------------------------------------|--|--|
| Note (material data) | Information on material specifications can be found here | |
| Color | gray | |
| Material group | I | |
| Insulation material (main housing) | Polyamide (PA66) | |
| Flammability class per UL94 | V0 | |
| Fire load | 0.065 MJ | |
| Weight | 3.6 g | |



Environmental requirements

| | | | |
|----------------------------------|-----------------|--|---|
| Processing temperature | -35 ... +85 °C | Environmental Testing (Environmental Conditions) | |
| Continuous operating temperature | -60 ... +105 °C | Test specification Railway applications – Rolling stock – Electronic equipment | DIN EN 50155 (VDE 0115-200):2022-06 |
| | | Test procedure Railway applications – Rolling stock equipment – Shock and vibration tests | DIN EN 61373 (VDE 0115-0106):2011-04 |
| | | Spectrum/Installation location | Service life test, Category 1, Class A/B |
| | | Function test with noise-like vibration | Test passed according to Section 8 of the standard |
| | | Frequency | f ₁ = 5 Hz to f ₂ = 150 Hz f ₁ = 5 Hz to f ₂ = 150 Hz |
| | | Acceleration | 0.101g (highest test level used for all axes) 0.572g (highest test level used for all axes) 5g (highest test level used for all axes) |
| | | Test duration per axis | 10 min. 5 h |
| | | Test directions | X, Y and Z axes X, Y and Z axes X, Y and Z axes |
| | | Monitoring for contact faults/interruptions | Passed |
| | | Voltage drop measurement before and after each axis | Passed |
| | | Simulated service life test through increased levels of noise-like vibration | Test passed according to Section 9 of the standard |
| | | Extended test scope: Monitoring for contact faults/interruptions | Passed Passed |
| | | Extended test scope: Voltage drop measurement before and after each axis | Passed Passed |
| | | Shock test | Test passed according to Section 10 of the standard |
| | | Shock form | Half sine |
| | | Shock duration | 30 ms |
| | | Number of shocks per axis | 3 pos. und 3 neg. |
| | | Vibration and shock stress for rolling stock equipment | Passed |





Commercial data




| | |
|-----------------------|-------------------|
| Product Group | 18 (X-COM-System) |
| PU (SPU) | 250 pcs |
| Packaging type | Bag |
| Country of origin | CN |
| GTIN | 4066966659672 |
| Customs tariff number | 85366990990 |




| Product classification | |
|------------------------|----------------------|
| UNSPSC | 39121409 |
| eCl@ss 10.0 | 27-14-11-06 |
| eCl@ss 9.0 | 27-14-11-06 |
| ETIM 9.0 | EC001284 |
| ETIM 8.0 | EC001284 |
| ECCN | NO US CLASSIFICATION |

| Environmental Product Compliance | |
|----------------------------------|------------------------|
| RoHS Compliance Status | Compliant,No Exemption |

| Approvals / Certificates | | |
|--|---------------|---|
| General approvals | | Declarations of conformity and manufacturer's declarations |
|    | |  |
| Approval | Standard | Certificate Name |
| CSA DEKRA Certification B.V. | C22.2 No. 158 | 2437422 |
| KEMA/KEUR DEKRA Certification B.V. | EN 61984 | 71-101560 |
| UL Underwriters Laboratories Inc. | UL 1059 | E45172 |
| Approval | Standard | Certificate Name |
| EU-Declaration of Confor- mity WAGO GmbH & Co. KG | - | - |
| Railway WAGO GmbH & Co. KG | - | Z00004392.000 |
| UK-Declaration of Confor- mity WAGO GmbH & Co. KG | - | - |

| Approvals for marine applications | | |
|--|----------|------------------|
|    | | |
| Approval | Standard | Certificate Name |
| ABS American Bureau of Ship- ping | EN 60947 | 20-HG1941090-PDA |
| BV Bureau Veritas S.A. | EN 60947 | 38586/B0 BV |
| DNV GL Det Norske Veritas, Ger- manischer Lloyd | - | TAE00001V2 |

| Downloads | |
|--|---|
| Environmental Product Compliance | |
| Compliance Search | |
| Environmental Product Compliance 2022-181 |  |



Documentation

| Bid Text | | | |
|----------|------------|------------------|--|
| 2022-181 | 19.02.2019 | xml 4.26 KB | |
| 2022-181 | 14.05.2019 | docx 16.11 KB | |

CAD/CAE-Data

| CAD data | | CAE data | |
|--------------|--|-------------------|--|
| 2D/3D Models | | EPLAN Data Portal | |
| 2022-181 | | WSCAD Universe | |
| | | 2022-181 | |
| | | ZUKEN Portal | |
| | | 2022-181 | |

1 Compatible Products

1.1 Optional Accessories

1.1.1 Ferrule

1.1.1.1 Ferrule

| | | | |
|---|---|---|---|
| | | | |
| 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.: 216-242 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.: 216-243 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.: 216-244 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.: 216-246 Ferrule; Sleeve for 2.5 mm² / AWG 14; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; blue | Item No.: 216-266 Ferrule; Sleeve for 2.5 mm² / AWG 14; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; blue | Item No.: 216-286 Ferrule; Sleeve for 2.5 mm² / AWG 14; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; blue | |



1.1.2 Insulation stop

1.1.2.1 Insulation stop



[Item No.: 2002-171](#)
Insulation stop; 0.25 - 0.5 mm²; 5 pieces/strip; light gray



[Item No.: 2002-172](#)
Insulation stop; 0.75 - 1 mm²; 5 pieces/strip; dark gray

1.1.3 Locking system

1.1.3.1 Locking system



[Item No.: 2022-141](#)
Locking lever; gray



[Item No.: 2022-151](#)
Locking lever; gray



[Item No.: 2022-142](#)
Locking lever; orange



[Item No.: 2022-152](#)
Locking lever; orange

1.1.4 Marking

1.1.4.1 Marker



[Item No.: 793-5501](#)
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; white



[Item No.: 2009-115](#)
WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white

1.1.4.2 Marking strip



[Item No.: 210-833](#)
Marking strips; 25 m on roll; 6 mm wide; plain; Self-adhesive; white



[Item No.: 2009-110](#)
Marking strips; for Smart Printer; on reel; not stretchable; plain; snap-on type; white



[Item No.: 210-831](#)
Marking strips; on reel; 2.3 mm wide; plain; Self-adhesive; white



[Item No.: 210-832](#)
Marking strips; on reel; 3 mm wide; plain; Self-adhesive; white



[Item No.: 210-834](#)
Marking strips; on reel; 5 mm wide; plain; Self-adhesive; white

1.1.5 Protective warning marker

1.1.5.1 Cover



[Item No.: 2002-115](#)
Protective warning marker; for 5 terminal blocks; with high-voltage symbol, black; yellow

1.1.6 Screwless end stop

1.1.6.1 Mounting accessories



Item No.: 249-117
Screwless end stop; 10 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray



Item No.: 249-116
Screwless end stop; 6 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray

1.1.7 Strain relief

1.1.7.1 Strain relief plate



Item No.: 734-430
Strain relief plate; for female and male connectors; 1 part; gray



Item No.: 734-328
Strain relief plate; for female and male connectors; 12.5 mm wide; 1 part; gray



Item No.: 734-329
Strain relief plate; for female and male connectors; 25 mm wide; 1 part; gray



Item No.: 734-326
Strain relief plate; for female and male connectors; 35 mm wide; 1 part; gray



Item No.: 734-327
Strain relief plate; for female and male connectors; 6 mm wide; 1 part; gray



Item No.: 734-431
Strain relief plate; for female and male connectors; 75 mm wide; 1 part; gray

1.1.8 Tool

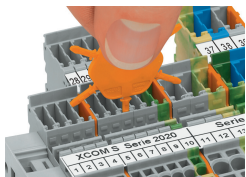
1.1.8.1 Operating tool



Item No.: 210-720
Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured

Installation Notes

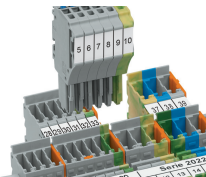
Coding



Insert coding pin into the corresponding slot and twist it off.

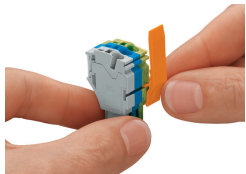


Coding a female plug: remove coding finger using a suitable tool.

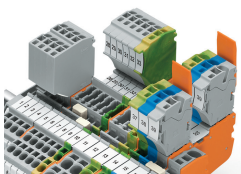


Insert coded female plug into X-COM®S-SYSTEM terminal block assembly.

Locking system



Slide the locking lever into position.



Female plugs can be individually locked.

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

Current addresses can be found at: www.wago.com