

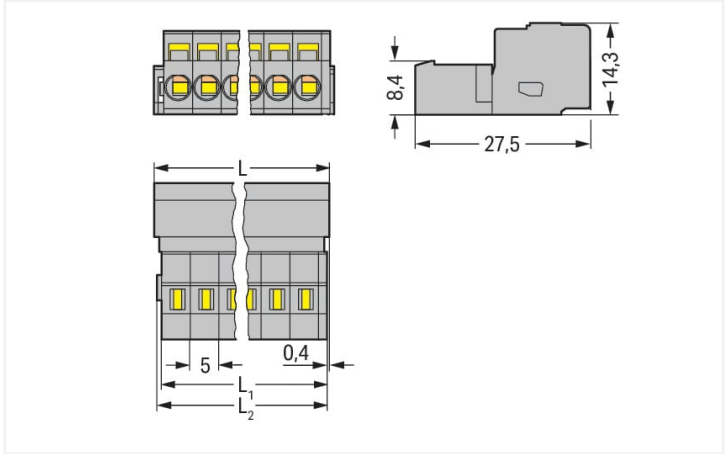
Data Sheet | Item Number: 231-620

1-conductor male connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole;  
2,50 mm²; gray

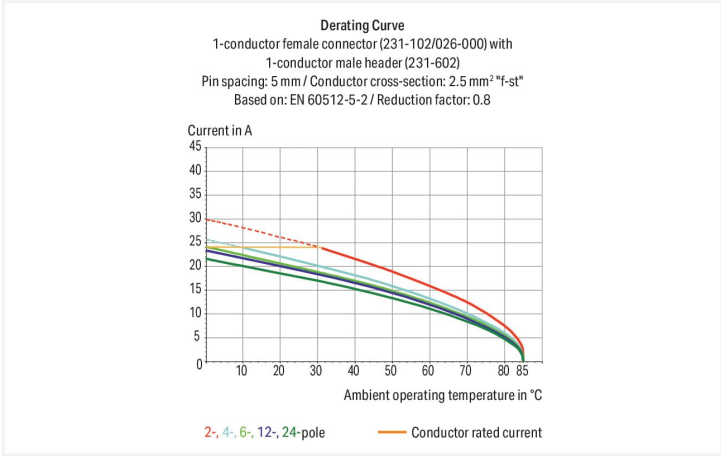
<https://www.wago.com/231-620>



Color: ■ gray



Dimensions in mm  
 $L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$   
 $L1 = L - 1.7 \text{ mm}$   
 $L2 = L - 1.2 \text{ mm}$



- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP® actuation
- For wire-to-wire and board-to-wire connections
- Versions available with snap-in mounting feet or flanges for panel or through-panel mounting
- With coding fingers

| 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 |       |       |       | Approvals per UL 1059 |       |   |       |
|----------------------------|-------|-------|-------|-----------------------|-------|---|-------|
| Overvoltage category       | III   | III   | II    | Use group             | B     | C | D     |
| Pollution degree           | 3     | 2     | 2     | Rated voltage         | 300 V | - | 300 V |
| Nominal voltage            | 320 V | 320 V | 630 V | Rated current         | 15 A  | - | 10 A  |
| Rated surge voltage        | 4 kV  | 4 kV  | 4 kV  |                       |       |   |       |
| Rated current              | 12 A  | 12 A  | 12 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

|                            |    |                                                   |                                            |
|----------------------------|----|---------------------------------------------------|--------------------------------------------|
| Connection points          | 20 | Connection 1                                      |                                            |
| Total number of potentials | 20 | 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 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                                       | 20                                         |
|                            |    | Conductor entry direction to mating direction     | 0°                                         |

Physical data

|             |                         |
|-------------|-------------------------|
| Pin spacing | 5 mm / 0.197 inches     |
| Width       | 103.2 mm / 4.063 inches |
| Height      | 14.3 mm / 0.563 inches  |
| Depth       | 27.5 mm / 1.083 inches  |

Mechanical data

|                          |     |
|--------------------------|-----|
| Variable coding          | Yes |
| 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         | 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                   | 0.744 MJ                                                                 |
| Weight                      | 29.7 g                                                                   |

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

| Commercial data       |                        |
|-----------------------|------------------------|
| Product Group         | 3 (Multi Conn. System) |
| eCl@ss 10.0           | 27-44-03-09            |
| eCl@ss 9.0            | 27-44-03-09            |
| ETIM 8.0              | EC002638               |
| ETIM 7.0              | EC002638               |
| PU (SPU)              | 10 pcs                 |
| Packaging type        | Box                    |
| Country of origin     | DE                     |
| GTIN                  | 4044918259149          |
| Customs tariff number | 85366930000            |

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

### Approvals / Certificates

| General approvals                                                                                                                                                                                                                                          |           |                  | Declarations of conformity and manufacturer's declarations                          |          |                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------|-------------------------------------------------------------------------------------|----------|------------------|
|    |           |                  |  |          |                  |
| Approval                                                                                                                                                                                                                                                   | Standard  | Certificate Name | Approval                                                                            | Standard | Certificate Name |
| CB<br>DEKRA Certification B.V.                                                                                                                                                                                                                             | IEC 61984 | NL-39756/A1      | Railway<br>WAGO GmbH & Co. KG                                                       | -        | Railway Ready    |
| CSA<br>DEKRA Certification B.V.                                                                                                                                                                                                                            | C22.2     | 1466354          |                                                                                     |          |                  |
| KEMA/KEUR<br>DEKRA Certification B.V.                                                                                                                                                                                                                      | EN 61984  | 71-121453        |                                                                                     |          |                  |
| UR<br>Underwriters Laboratories Inc.                                                                                                                                                                                                                       | UL 1977   | E45171           |                                                                                     |          |                  |



Approvals for marine applications

|    |           |                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------|
| Approval                                                                                                                                                                                                                                             | Standard  | Certificate Name |
| ABS<br>American Bureau of Ship-<br>ping                                                                                                                                                                                                              | -         | 19-HG1869876-PDA |
| DNV<br>DNV GL SE                                                                                                                                                                                                                                     | -         | TAE000016Z       |
| LR<br>Lloyds Register                                                                                                                                                                                                                                | IEC 61984 | 96/20035 (E5)    |

Downloads

| Environmental Product Compliance            |                                                                                   |
|---------------------------------------------|-----------------------------------------------------------------------------------|
| Compliance Search                           |                                                                                   |
| Environmental Product<br>Compliance 231-620 |  |

Documentation

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

CAD/CAE-Data

| CAD data                                                                                                 | CAE data                                                                                                           |
|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| 2D/3D Models 231-620  | EPLAN Data Portal<br>231-620  |
|                                                                                                          | ZUKEN Portal 231-620          |

1 Compatible Products

1.1 System counterpart

1.1.1 Female connector/socket

|                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>Item No.: 232-120/026-000</b><br>1-conductor female connector, angled;<br>CAGE CLAMP®; 2.5 mm²; Pin spacing 5<br>mm; 20-pole; 2,50 mm²; gray | <br><b>Item No.: 232-220/026-000</b><br>1-conductor female connector, angled;<br>CAGE CLAMP®; 2.5 mm²; Pin spacing 5<br>mm; 20-pole; 2,50 mm²; gray           | <br><b>Item No.: 731-520/031-000</b><br>1-conductor female connector, angled;<br>CAGE CLAMP®; 2.5 mm²; Pin spacing 5<br>mm; 20-pole; clamping collar; DIN-35 rail/<br>panel mounting; 2,50 mm²; gray | <br><b>Item No.: 731-520/008-000</b><br>1-conductor female connector, angled;<br>CAGE CLAMP®; 2.5 mm²; Pin spacing 5<br>mm; 20-pole; Snap-in mounting feet; 2,50<br>mm²; gray |
| <br><b>Item No.: 231-120/026-000</b><br>1-conductor female connector; CAGE<br>CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-<br>pole; 2,50 mm²; gray        | <br><b>Item No.: 231-120/027-000</b><br>1-conductor female connector; CAGE<br>CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-<br>pole; clamping collar; 2,50 mm²; gray | <br><b>Item No.: 231-120/031-000</b><br>1-conductor female connector; CAGE<br>CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-<br>pole; clamping collar; 2,50 mm²; gray                                        | <br><b>Item No.: 231-120/037-000</b><br>1-conductor female connector; CAGE<br>CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-<br>pole; Lateral locking levers; 2,50 mm²;<br>gray       |



1.1.1 Female connector/socket

|                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>Item No.: 231-120/008-000</b><br>1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole; Snap-in mounting feet; 2,50 mm²; gray                        | <br><b>Item No.: 231-120/102-000</b><br>1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole; with integrated end plate; 2,50 mm²; gray                   | <br><b>Item No.: 2231-120/026-000</b><br>1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole; 2,50 mm²; gray                            | <br><b>Item No.: 2231-120/031-000</b><br>1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole; clamping collar; 2,50 mm²; gray |
| <br><b>Item No.: 2231-120/037-000</b><br>1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole; Lateral locking levers; 2,50 mm²; gray | <br><b>Item No.: 2231-120/008-000</b><br>1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole; Snap-in mounting feet; 2,50 mm²; gray | <br><b>Item No.: 2231-120/102-000</b><br>1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole; with integrated end plate; 2,50 mm²; gray | <br><b>Item No.: 232-250/005-000/039-000</b><br>Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; angled; Locking lever; Pin spacing 5 mm; 20-pole; gray     |
| <br><b>Item No.: 232-250/005-000</b><br>Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; angled; Pin spacing 5 mm; 20-pole; gray                                   | <br><b>Item No.: 232-150/005-000/039-000</b><br>Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; straight; Locking lever; Pin spacing 5 mm; 20-pole; gray         | <br><b>Item No.: 232-150/005-000</b><br>Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; straight; Pin spacing 5 mm; 20-pole; gray                                    | <br><b>Item No.: 232-250</b><br>THT female header; angled; Pin spacing 5 mm; 20-pole; 0.6 x 1.0 mm solder pin; gray                                                          |
| <br><b>Item No.: 232-250/031-000</b><br>THT female header; angled; Pin spacing 5 mm; 20-pole; clamping collar; 0.6 x 1.0 mm solder pin; gray                                        | <br><b>Item No.: 232-250/039-000</b><br>THT female header; angled; Pin spacing 5 mm; 20-pole; Locking lever; 0.6 x 1.0 mm solder pin; gray                                         | <br><b>Item No.: 232-250/047-000</b><br>THT female header; angled; Pin spacing 5 mm; 20-pole; Spacer flange; 0.6 x 1.0 mm solder pin; gray                                             | <br><b>Item No.: 232-150</b><br>THT female header; straight; Pin spacing 5 mm; 20-pole; 0.6 x 1.0 mm solder pin; gray                                                        |
| <br><b>Item No.: 232-150/031-000</b><br>THT female header; straight; Pin spacing 5 mm; 20-pole; clamping collar; 0.6 x 1.0 mm solder pin; gray                                      | <br><b>Item No.: 232-150/039-000</b><br>THT female header; straight; Pin spacing 5 mm; 20-pole; Locking lever; 0.6 x 1.0 mm solder pin; gray                                       | <br><b>Item No.: 232-150/047-000</b><br>THT female header; straight; Pin spacing 5 mm; 20-pole; Spacer flange; 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 mm<sup>2</sup> / AWG 24; insulated; electro-tin plated; yellow



**Item No.: 216-321**  
Ferrule; Sleeve for 0.25 mm<sup>2</sup> / AWG 24; insulated; electro-tin plated; yellow



**Item No.: 216-151**  
Ferrule; Sleeve for 0.25 mm<sup>2</sup> / AWG 24; uninsulated; electro-tin plated



**Item No.: 216-131**  
Ferrule; Sleeve for 0.25 mm<sup>2</sup> / AWG 24; uninsulated; electro-tin plated; silver-colored



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



**Item No.: 216-322**  
Ferrule; Sleeve for 0.34 mm<sup>2</sup> / 22 AWG; insulated; electro-tin plated; light turquoise



**Item No.: 216-132**  
Ferrule; Sleeve for 0.34 mm<sup>2</sup> / AWG 24; uninsulated; electro-tin plated



**Item No.: 216-152**  
Ferrule; Sleeve for 0.34 mm<sup>2</sup> / AWG 24; uninsulated; electro-tin plated



**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.: 216-201**  
Ferrule; Sleeve for 0.5 mm<sup>2</sup> / 20 AWG; insulated; electro-tin plated; white



**Item No.: 216-221**  
Ferrule; Sleeve for 0.5 mm<sup>2</sup> / 20 AWG; insulated; electro-tin plated; white



**Item No.: 216-141**  
Ferrule; Sleeve for 0.5 mm<sup>2</sup> / 20 AWG; uninsulated; 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; uninsulated; electro-tin plated; silver-colored



**Item No.: 216-121**  
Ferrule; Sleeve for 0.5 mm<sup>2</sup> / AWG 22; uninsulated; 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.: 216-222**  
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; uninsulated; 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; uninsulated; electro-tin plated; silver-colored



**Item No.: 216-122**  
Ferrule; Sleeve for 0.75 mm<sup>2</sup> / AWG 20; uninsulated; 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.: 216-223**  
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; uninsulated; electro-tin plated



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



**Item No.: 216-123**  
Ferrule; Sleeve for 1 mm<sup>2</sup> / AWG 18; uninsulated; electro-tin plated; silver-colored



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



**Item No.: 216-224**  
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.: 216-124**  
Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; uninsulated; electro-tin plated



**Item No.: 216-144**  
Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; uninsulated; 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; uninsulated; electro-tin plated; silver-colored



**Item No.: 216-106**  
Ferrule; Sleeve for 2.5 mm<sup>2</sup> / AWG 14; uninsulated; 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 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

1.2.5 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.: 210-331/500-103**  
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

1.2.7 Tool

1.2.7.1 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



**Item No.: 209-130**  
Operating tool; made of insulating material; 1-way; for 264 Series (1-1/2-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



**Item No.: 280-434**  
Operating tool; made of insulating material; 4-way

1.2.7.1 Operating tool



**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



**Item No.: 280-437**  
Operating tool; made of insulating material; 7-way



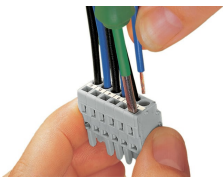
**Item No.: 280-438**  
Operating tool; made of insulating material; 8-way



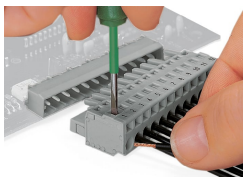
**Item No.: 231-159**  
Operating tool; natural

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.

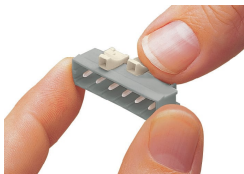


Inserting a conductor into CAGE CLAMP® unit via operating tool (231-291).



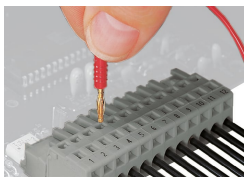
Inserting a conductor via operating tool.

Coding



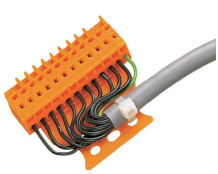
Coding a male header – fitting coding key(s).

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.