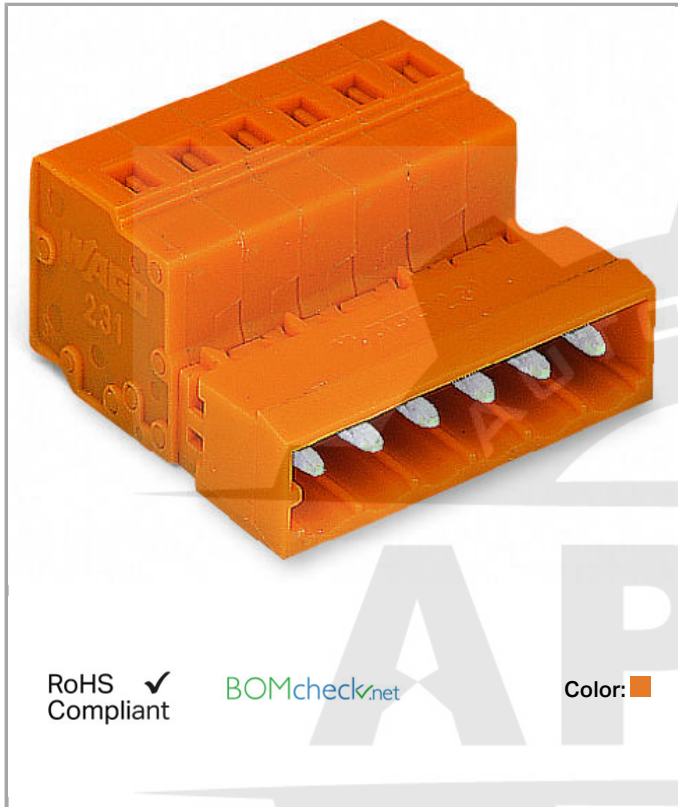


# Data sheet | Item number: 231-653

1-conductor male connector; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 23-pole



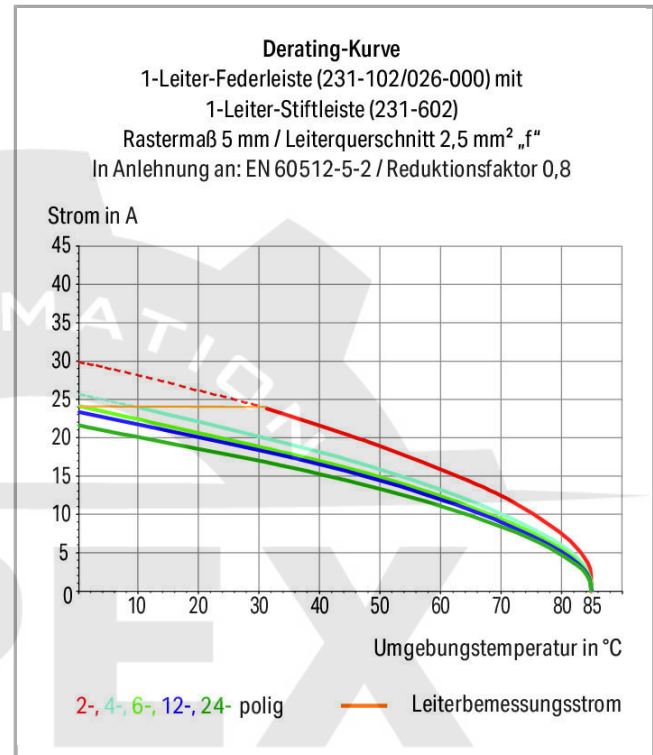
231-653

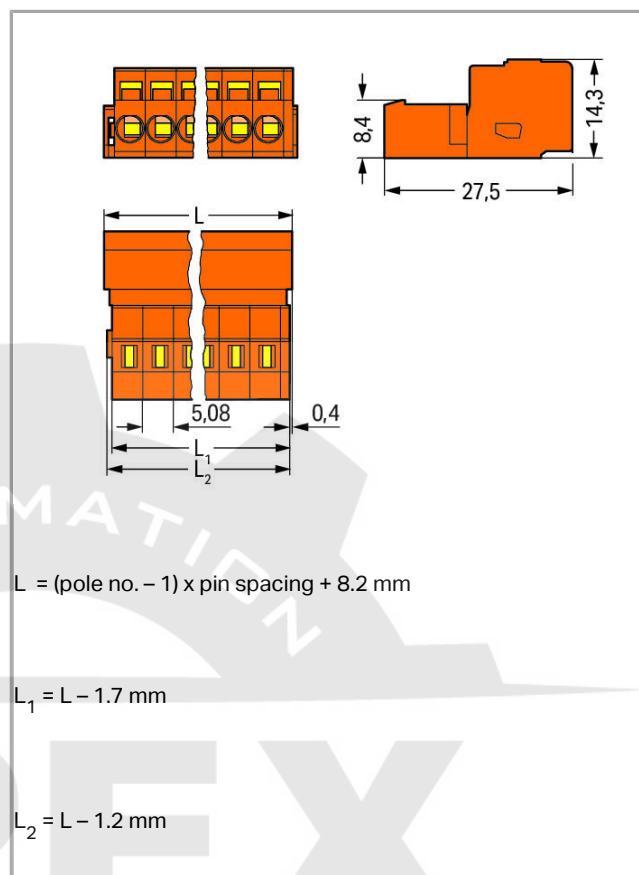


RoHS Compliant

BOMcheck.net

Color:





## Item description

- 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

## Safety information 1:

The *MULTI CONNECTION SYSTEM (MCS)* is designed without breaking capacity for compliance with DIN EN 61984. When used as intended, MCS Connectors shall 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.

## Data

### Electrical data

### Ratings per IEC/EN 60664-1

|                                 |       |
|---------------------------------|-------|
| Rated voltage (III / 3)         | 320 V |
| Rated impulse voltage (III / 3) | 4 kV  |

|                                 |       |
|---------------------------------|-------|
| Rated voltage (III / 2)         | 320 V |
| Rated impulse voltage (III / 2) | 4 kV  |
| Rated voltage (II / 2)          | 630 V |
| Rated impulse voltage (II / 2)  | 4 kV  |
| Rated current                   | 12 A  |

### Approvals per UL 1059

|                                |       |
|--------------------------------|-------|
| Rated voltage UL (Use Group B) | 300 V |
| Rated current UL (Use Group B) | 15 A  |
| Rated voltage UL (Use Group D) | 300 V |
| Rated current UL (Use Group D) | 10 A  |

### Approvals per UL 1977

|                                                 |       |
|-------------------------------------------------|-------|
| Rated voltage per UL 1977 (factory wiring only) | 600 V |
| Rated current per UL 1977 (factory wiring only) | 15 A  |

### Approvals per CSA

|                                 |       |
|---------------------------------|-------|
| Rated voltage CSA (Use Group B) | 300 V |
| Rated current CSA (Use Group B) | 15 A  |
| Rated voltage CSA (Use Group D) | 300 V |
| Rated current CSA (Use Group D) | 10 A  |

### Connection data

|                                                             |                                  |
|-------------------------------------------------------------|----------------------------------|
| Connection technology                                       | CAGE CLAMP®                      |
| Actuation type                                              | Operating tool                   |
| 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 ferrule with plastic collar    | 0.25 ... 1.5 mm²                 |
| Fine-stranded conductor with ferrule without plastic collar | 0.25 ... 2.5 mm²                 |
| Strip length                                                | 8 ... 9 mm / 0.31 ... 0.35 inch  |
| No. of poles                                                | 23                               |
| Total number of connection points                           | 23                               |
| Total number of potentials                                  | 23                               |
| Number of connection types                                  | 1                                |
| Number of levels                                            | 1                                |
| Conductor entry direction to mating direction               | 0°                               |

### Geometrical Data

|             |                    |
|-------------|--------------------|
| Pin spacing | 5.08 mm / 0.2 inch |
|-------------|--------------------|

|        |                        |
|--------|------------------------|
| Width  | 120.04 mm / 4.726 inch |
| Height | 14.3 mm / 0.563 inch   |
| Depth  | 27.5 mm / 1.083 inch   |

## Plug connection

|                                    |                     |
|------------------------------------|---------------------|
| Contact type (pluggable connector) | Male connector/plug |
| Connector connection type          | for conductors      |
| Mismating protection               | No                  |

## Material Data

|                             |                                        |
|-----------------------------|----------------------------------------|
| Color                       | orange                                 |
| Material group              | I                                      |
| Insulating material         | Polyamide 66 (PA 66)                   |
| Flammability class per UL94 | V0                                     |
| Clamping spring material    | Chrome nickel spring steel (CrNi)      |
| Contact material            | Electrolytic copper (E <sub>Cu</sub> ) |
| Contact plating             | tin-plated                             |
| Fire load                   | 0.574 MJ                               |
| Weight                      | 35.36 g                                |

## Environmental Requirements

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

## Commercial data

|                    |                        |
|--------------------|------------------------|
| Product Group      | 3 (Multi Conn. System) |
| Country of origin  | DE                     |
| GTIN               | 4044918261302          |
| Customs Tariff No. | 85366990990            |

## Approvals / Certificates

### Country specific Approvals

| Logo                                                                               | Approval                                     | Additional Approval Text | Certificate name |
|------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|------------------|
|                                                                                    | <b>CB</b><br>DEKRA Certification B.V.        | IEC 61984                | NL-39756         |
|  | <b>KEMA/KEUR</b><br>DEKRA Certification B.V. | EN 61984                 | 2190761.01       |

### Ship Approvals

| Logo                                                                             | Approval                                                | Additional Approval Text | Certificate name         |
|----------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------|--------------------------|
|  | <b>ABS</b><br>American Bureau of Shipping               | -                        | 14-<br>HG1241537-<br>PDA |
|  | <b>DNV GL</b><br>Det Norske Veritas, Germanischer Lloyd | -                        | TAE000016Z               |

## UL-Approvals

| Logo                                                                             | Approval                                    | Additional Approval Text | Certificate name |
|----------------------------------------------------------------------------------|---------------------------------------------|--------------------------|------------------|
|  | <b>UL</b><br>UL International Germany GmbH  | UL 1977                  | E45171           |
|  | <b>UR</b><br>Underwriters Laboratories Inc. | UL 1059                  | E45172           |

## Compatible products

|                                                                                    |                                                                                                                |  |         |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--|---------|
| <b>ferrule</b>                                                                     |                                                                                                                |  |         |
|  | <b>Item no.: 216-101</b><br>Ferrule; Sleeve for 0.5 mm <sup>2</sup> / AWG 22; uninsulated; electro-tin plated  |  | 216-101 |
|  | <b>Item no.: 216-102</b><br>Ferrule; Sleeve for 0.75 mm <sup>2</sup> / AWG 20; uninsulated; electro-tin plated |  | 216-102 |
|  | <b>Item no.: 216-103</b><br>Ferrule; Sleeve for 1 mm <sup>2</sup> / AWG 18; uninsulated; electro-tin plated    |  | 216-103 |
|  | <b>Item no.: 216-104</b><br>Ferrule; Sleeve for 1.5 mm <sup>2</sup> / AWG 16; uninsulated; electro-tin plated  |  | 216-104 |
|  | <b>Item no.: 216-106</b><br>Ferrule; Sleeve for 2.5 mm <sup>2</sup> / AWG 14; uninsulated; electro-tin plated  |  | 216-106 |
|  | <b>Item no.: 216-121</b><br>Ferrule; Sleeve for 0.5 mm <sup>2</sup> / AWG 22; uninsulated; electro-tin plated  |  | 216-121 |

|                                                                                    |                                                                                                                                                                            |         |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|    | <b>Item no.: 216-122</b><br>Ferrule; Sleeve for 0.75 mm² / AWG 20; uninsulated; electro-tin plated                                                                         | 216-122 |
|    | <b>Item no.: 216-123</b><br>Ferrule; Sleeve for 1 mm² / AWG 18; uninsulated; electro-tin plated                                                                            | 216-123 |
|    | <b>Item no.: 216-124</b><br>Ferrule; Sleeve for 1.5 mm² / AWG 16; uninsulated; electro-tin plated                                                                          | 216-124 |
|    | <b>Item no.: 216-131</b><br>Ferrule; Sleeve for 0.25 mm² / AWG 24; uninsulated; electro-tin plated                                                                         | 216-131 |
|    | <b>Item no.: 216-132</b><br>Ferrule; Sleeve for 0.34 mm² / AWG 24; uninsulated; electro-tin plated                                                                         | 216-132 |
|    | <b>Item no.: 216-141</b><br>Ferrule; Sleeve for 0.5 mm² / 20 AWG; uninsulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92  | 216-141 |
|    | <b>Item no.: 216-142</b><br>Ferrule; Sleeve for 0.75 mm² / 18 AWG; uninsulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92 | 216-142 |
|    | <b>Item no.: 216-143</b><br>Ferrule; Sleeve for 1 mm² / AWG 18; uninsulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92    | 216-143 |
|    | <b>Item no.: 216-144</b><br>Ferrule; Sleeve for 1.5 mm² / AWG 16; uninsulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92  | 216-144 |
|   | <b>Item no.: 216-151</b><br>Ferrule; Sleeve for 0.25 mm² / AWG 24; uninsulated; electro-tin plated                                                                         | 216-151 |
|  | <b>Item no.: 216-152</b><br>Ferrule; Sleeve for 0.34 mm² / AWG 24; uninsulated; electro-tin plated                                                                         | 216-152 |
|  | <b>Item no.: 216-201</b><br>Ferrule; Sleeve for 0.5 mm² / 20 AWG; insulated; electro-tin plated                                                                            | 216-201 |
|  | <b>Item no.: 216-202</b><br>Ferrule; Sleeve for 0.75 mm² / 18 AWG; insulated; electro-tin plated                                                                           | 216-202 |
|  | <b>Item no.: 216-203</b><br>Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated                                                                              | 216-203 |
|  | <b>Item no.: 216-204</b><br>Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated                                                                            | 216-204 |
|  | <b>Item no.: 216-221</b><br>Ferrule; Sleeve for 0.5 mm² / 20 AWG; insulated; electro-tin plated                                                                            | 216-221 |
|  | <b>Item no.: 216-222</b><br>Ferrule; Sleeve for 0.75 mm² / 18 AWG; insulated; electro-tin plated                                                                           | 216-222 |
|  | <b>Item no.: 216-223</b><br>Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated                                                                              | 216-223 |
|  | <b>Item no.: 216-224</b><br>Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated                                                                            | 216-224 |
|                                                                                    | <b>Item no.: 216-241</b>                                                                                                                                                   |         |

|                                                                                    |                                                                                                                                                                                              |                     |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
|     | Ferrule; Sleeve for 0.5 mm² / 20 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90                                                  | 216-241             |
|     | <b>Item no.: 216-242</b><br>Ferrule; Sleeve for 0.75 mm² / 18 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90                     | 216-242             |
|     | <b>Item no.: 216-243</b><br>Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90                        | 216-243             |
|     | <b>Item no.: 216-244</b><br>Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90                      | 216-244             |
|     | <b>Item no.: 216-262</b><br>Ferrule; Sleeve for 0.75 mm² / 18 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90                     | 216-262             |
|     | <b>Item no.: 216-263</b><br>Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90                        | 216-263             |
|     | <b>Item no.: 216-264</b><br>Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90                      | 216-264             |
|     | <b>Item no.: 216-284</b><br>Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90                      | 216-284             |
|                                                                                    | <b>Item no.: 216-301</b><br>Ferrule; Sleeve for 0.25 mm² / AWG 24; insulated; electro-tin plated                                                                                             | 216-301             |
|   | <b>Item no.: 216-302</b><br>Ferrule; Sleeve for 0.34 mm² / 22 AWG; insulated; electro-tin plated                                                                                             | 216-302             |
|                                                                                    | <b>Item no.: 216-321</b><br>Ferrule; Sleeve for 0.25 mm² / AWG 24; insulated; electro-tin plated                                                                                             | 216-321             |
|   | <b>Item no.: 216-322</b><br>Ferrule; Sleeve for 0.34 mm² / 22 AWG; insulated; electro-tin plated                                                                                             | 216-322             |
| <b>Coding</b>                                                                      |                                                                                                                                                                                              |                     |
|  | <b>Item no.: 231-129</b><br>Coding key; snap-on type                                                                                                                                         | 231-129             |
| <b>Marking accessories</b>                                                         |                                                                                                                                                                                              |                     |
|                                                                                    | <b>Item no.: 210-331/508-103</b><br>Marking strips; as a DIN A4 sheet; MARKED; 1-12 (200x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive  | 210-331<br>/508-103 |
|                                                                                    | <b>Item no.: 210-331/508-104</b><br>Marking strips; as a DIN A4 sheet; MARKED; 13-24 (200x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive | 210-331<br>/508-104 |
|                                                                                    | <b>Item no.: 210-332/508-202</b><br>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             | 210-332<br>/508-202 |
|                                                                                    | <b>Item no.: 210-332/508-204</b><br>Marking strips; as a DIN A4 sheet; MARKED; 17-32 (160x); Height of marker strip: 3 mm; Strip length                                                      | 210-332<br>/508-204 |

182 mm; Horizontal marking; Self-adhesive

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

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

/508-205

210-332

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

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

/508-206

210-332

**Item no.: 210-833**

Marking strips; on reel; 6 mm wide; plain; Self-adhesive

210-833

**Item no.: 210-834**

Marking strips; on reel; 5 mm wide; plain; Self-adhesive

210-834

**tools****Item no.: 209-130**

Operating tool; suitable for 264, 280 and 281 Series; 1-way; of insulating material

209-130

**Item no.: 209-132**

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

209-132

**Item no.: 210-657**

Operating tool with partially insulated shaft; Blade (3.5 x 0.5) mm; short

210-657

**Item no.: 210-720**

Operating tool with partially insulated shaft; Type 2, blade (3.5 x 0.5) mm

210-720

**Item no.: 231-131**

Push-button; for female and male connectors; loose

231-131

**Item no.: 231-291**

Operating tool; for male and female connectors with CAGE CLAMP®; loose

231-291

**Item no.: 280-432**

Operating tool; of insulating material; 2-way

280-432

**Item no.: 280-433**

Operating tool; of insulating material; 3-way

280-433

**Item no.: 280-434**

Operating tool; of insulating material; 4-way

280-434

**Item no.: 280-435**

Operating tool; of insulating material; 5-way

280-435

**Item no.: 280-436**

Operating tool; of insulating material; 6-way

280-436

**Item no.: 280-437**

Operating tool; of insulating material; 7-way

280-437

**Item no.: 280-438**

Operating tool; of insulating material; 8-way

280-438

**Item no.: 280-440**

Operating tool; of insulating material; 10-way

280-440

**General accessories**

**Item no.: 231-669**

Lockout caps; for covering unused clamping units

231-669

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

231-670

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

231-671

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

231-672

**Jumper****Item no.: 231-902**

Comb-style jumper bar; for 5 mm and 5.08 mm pin spacing; reduces conductor size to 1.5 mm

231-902

**Item no.: 231-903**

Comb-style jumper bar; 3-way; suitable for 231 Series female connectors; with 5 mm pin spacing; insulated

231-903

**Item no.: 231-905**

Comb-style jumper bar; 5-way; suitable for 231 Series female connectors; with 5 mm pin spacing; insulated

231-905

**Item no.: 231-907**

Comb-style jumper bar; 7-way; suitable for 231 Series female connectors; with 5 mm pin spacing; insulated

231-907

**Item no.: 231-910**

Comb-style jumper bar; 10-way; suitable for 231 Series female connectors; with 5 mm pin spacing; insulated

231-910

**Downloads****CAD/CAE - Smart Data****CAD data**

3D Download 231-653

URL

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Subject to changes.