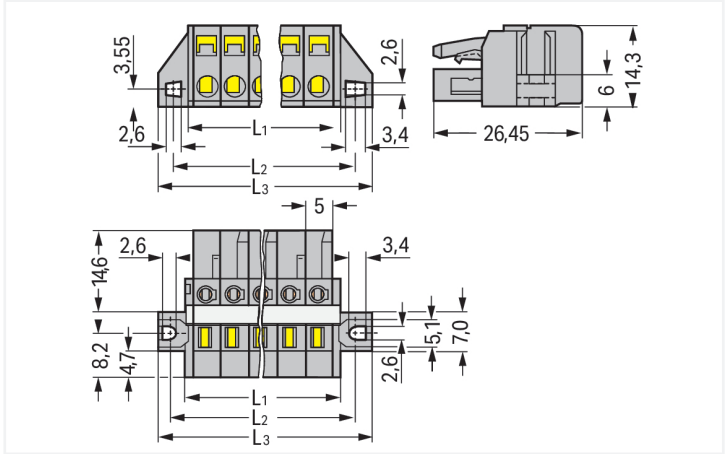
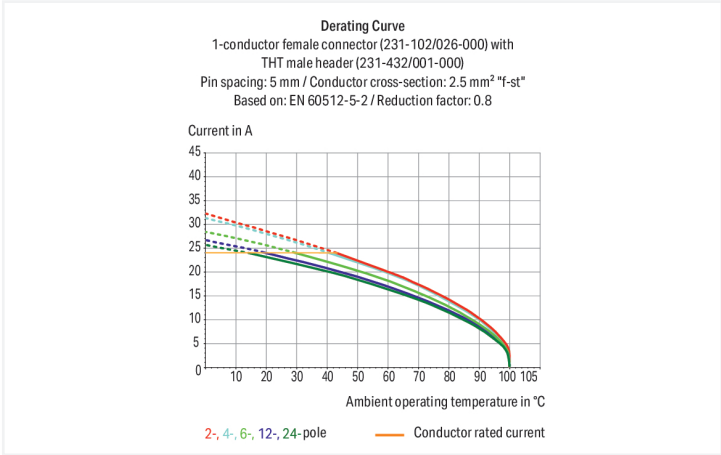




Color: ■ gray



Dimensions in mm  
L1 = (pole no. x pin spacing) + 3 mm  
L2 = (pole no. x pin spacing) + 8.8 mm  
L3 = (pole no. x pin spacing) + 14.8 mm  
2- to 3-pole female connectors – one latch only



**Federleiste/Buchse Serie 231 mit CAGE CLAMP®**

Bei dieser Federleiste/Buchse (Artikelnummer 231-124/027-000) ist eine saubere Elektroinstallation das Hauptaugenmerk. Unsere Leiterplatten-Steckverbinder ermöglichen Ihnen die größtmögliche Flexibilität bei verschiedenen Montagearten. Bei dieser Federleiste/Buchse ist für den Leiteranschluss eine Abisolierlänge im Bereich von 8 bis 9 mm erforderlich. Dieses Produkt verwendet die CAGE CLAMP®-Technologie. Der bewährte und wartungsfreie CAGE CLAMP® Universalanschluss ermöglicht den Anschluss aller Leiterarten mit einer Käfigzugfeder. Eine Vorbehandlung der Leiter, z.B. durch das Aufcrimpen von Aderendhülsen, ist nicht erforderlich. Die Abmessungen sind in Breite x Höhe x Tiefe (134,8 x 14,3 x 26,45) mm. In Abhängigkeit von der Leiterart ist die Federleiste/Buchse für Leiterquerschnitte von 0,08 mm² bis 2,5 mm² ausgelegt. Die Oberfläche der Kontakte ist aus Zinn. Über ein Betätigungswerkzeug wird diese Federleiste/Buchse betätigt. 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:          | 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        | 16 A           | 16 A  | 16 A  |

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

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

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

Connection data

|                            |    |
|----------------------------|----|
| Clamping units             | 24 |
| Total number of potentials | 24 |
| 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                                       | 24                                         |
| Conductor entry direction to mating direction     | 0°                                         |

Physical data

|             |                         |
|-------------|-------------------------|
| Pin spacing | 5 mm / 0.197 inches     |
| Width       | 134.8 mm / 5.307 inches |
| Height      | 14.3 mm / 0.563 inches  |
| Depth       | 26.45 mm / 1.041 inches |

Mechanical data

|                          |                                                            |
|--------------------------|------------------------------------------------------------|
| Variable coding          | Yes                                                        |
| Mounting type            | Mounting flange<br>Feed-through mounting<br>Panel mounting |
| with reinforcing strips  | 1                                                          |
| Anti-rotation protection | Yes                                                        |



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

| Material data                      |                                                                          |
|------------------------------------|--------------------------------------------------------------------------|
| Note (material data)               | <a href="#">Information on material specifications can be found here</a> |
| Color                              | gray                                                                     |
| Material group                     | I                                                                        |
| Insulation material (main housing) | Polyamide (PA66)                                                         |
| Flammability class per UL94        | V0                                                                       |
| Clamping spring material           | Chrome-nickel spring steel (CrNi)                                        |
| Contact material                   | Copper alloy                                                             |
| Contact Plating                    | Tin                                                                      |
| Fire load                          | 0.933 MJ                                                                 |
| Weight                             | 43.3 g                                                                   |

| Environmental requirements                                                                         |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  |  |                                                                                         |                                     |                                                                                                    |                                      |                                |                                          |                                         |                                                    |           |                                                                                                      |              |                                                                                                                                             |                        |                |                 |                                                       |                                             |        |                                                     |        |                                                                              |                                                    |                                                                  |                  |                                                                          |                  |            |                                                     |            |           |                |       |                           |                   |                                                        |        |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--|-----------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------|------------------------------------------|-----------------------------------------|----------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------|-----------------|-------------------------------------------------------|---------------------------------------------|--------|-----------------------------------------------------|--------|------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------|------------------|--------------------------------------------------------------------------|------------------|------------|-----------------------------------------------------|------------|-----------|----------------|-------|---------------------------|-------------------|--------------------------------------------------------|--------|
| Limit temperature range                                                                            | -60 ... +100 °C                                                                                                                             | <table><tr><th colspan="2">Environmental Testing (Environmental Conditions)</th></tr><tr><td>Test specification<br/>Railway applications –<br/>Rolling stock –<br/>Electronic equipment</td><td>DIN EN 50155 (VDE 0115-200):2022-06</td></tr><tr><td>Test procedure<br/>Railway applications –<br/>Rolling stock equipment –<br/>Shock and vibration tests</td><td>DIN EN 61373 (VDE 0115-0106):2011-04</td></tr><tr><td>Spectrum/Installation location</td><td>Service life test, Category 1, Class A/B</td></tr><tr><td>Function test with noise-like vibration</td><td>Test passed according to Section 8 of the standard</td></tr><tr><td>Frequency</td><td>f<sub>1</sub> = 5 Hz to f<sub>2</sub> = 150 Hz<br/>f<sub>1</sub> = 5 Hz to f<sub>2</sub> = 150 Hz</td></tr><tr><td>Acceleration</td><td>0.101g (highest test level used for all axes)<br/>0.572g (highest test level used for all axes)<br/>5g (highest test level used for all axes)</td></tr><tr><td>Test duration per axis</td><td>10 min.<br/>5 h</td></tr><tr><td>Test directions</td><td>X, Y and Z axes<br/>X, Y and Z axes<br/>X, Y and Z axes</td></tr><tr><td>Monitoring for contact faults/interruptions</td><td>Passed</td></tr><tr><td>Voltage drop measurement before and after each axis</td><td>Passed</td></tr><tr><td>Simulated service life test through increased levels of noise-like vibration</td><td>Test passed according to Section 9 of the standard</td></tr><tr><td>Extended test scope: Monitoring for contact faults/interruptions</td><td>Passed<br/>Passed</td></tr><tr><td>Extended test scope: Voltage drop measurement before and after each axis</td><td>Passed<br/>Passed</td></tr><tr><td>Shock test</td><td>Test passed according to Section 10 of the standard</td></tr><tr><td>Shock form</td><td>Half sine</td></tr><tr><td>Shock duration</td><td>30 ms</td></tr><tr><td>Number of shocks per axis</td><td>3 pos. und 3 neg.</td></tr><tr><td>Vibration and shock stress for rolling stock equipment</td><td>Passed</td></tr></table> | Environmental Testing (Environmental Conditions) |  | 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>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 <sub>1</sub> = 5 Hz to f <sub>2</sub> = 150 Hz<br>f <sub>1</sub> = 5 Hz to f <sub>2</sub> = 150 Hz | Acceleration | 0.101g (highest test level used for all axes)<br>0.572g (highest test level used for all axes)<br>5g (highest test level used for all axes) | Test duration per axis | 10 min.<br>5 h | Test directions | X, Y and Z axes<br>X, Y and Z axes<br>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<br>Passed | Extended test scope: Voltage drop measurement before and after each axis | Passed<br>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 |
| Environmental Testing (Environmental Conditions)                                                   |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  |  |                                                                                         |                                     |                                                                                                    |                                      |                                |                                          |                                         |                                                    |           |                                                                                                      |              |                                                                                                                                             |                        |                |                 |                                                       |                                             |        |                                                     |        |                                                                              |                                                    |                                                                  |                  |                                                                          |                  |            |                                                     |            |           |                |       |                           |                   |                                                        |        |
| 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>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 <sub>1</sub> = 5 Hz to f <sub>2</sub> = 150 Hz<br>f <sub>1</sub> = 5 Hz to f <sub>2</sub> = 150 Hz                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  |  |                                                                                         |                                     |                                                                                                    |                                      |                                |                                          |                                         |                                                    |           |                                                                                                      |              |                                                                                                                                             |                        |                |                 |                                                       |                                             |        |                                                     |        |                                                                              |                                                    |                                                                  |                  |                                                                          |                  |            |                                                     |            |           |                |       |                           |                   |                                                        |        |
| Acceleration                                                                                       | 0.101g (highest test level used for all axes)<br>0.572g (highest test level used for all axes)<br>5g (highest test level used for all axes) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  |  |                                                                                         |                                     |                                                                                                    |                                      |                                |                                          |                                         |                                                    |           |                                                                                                      |              |                                                                                                                                             |                        |                |                 |                                                       |                                             |        |                                                     |        |                                                                              |                                                    |                                                                  |                  |                                                                          |                  |            |                                                     |            |           |                |       |                           |                   |                                                        |        |
| Test duration per axis                                                                             | 10 min.<br>5 h                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  |  |                                                                                         |                                     |                                                                                                    |                                      |                                |                                          |                                         |                                                    |           |                                                                                                      |              |                                                                                                                                             |                        |                |                 |                                                       |                                             |        |                                                     |        |                                                                              |                                                    |                                                                  |                  |                                                                          |                  |            |                                                     |            |           |                |       |                           |                   |                                                        |        |
| Test directions                                                                                    | X, Y and Z axes<br>X, Y and Z axes<br>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<br>Passed                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  |  |                                                                                         |                                     |                                                                                                    |                                      |                                |                                          |                                         |                                                    |           |                                                                                                      |              |                                                                                                                                             |                        |                |                 |                                                       |                                             |        |                                                     |        |                                                                              |                                                    |                                                                  |                  |                                                                          |                  |            |                                                     |            |           |                |       |                           |                   |                                                        |        |
| Extended test scope: Voltage drop measurement before and after each axis                           | Passed<br>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                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  |  |                                                                                         |                                     |                                                                                                    |                                      |                                |                                          |                                         |                                                    |           |                                                                                                      |              |                                                                                                                                             |                        |                |                 |                                                       |                                             |        |                                                     |        |                                                                              |                                                    |                                                                  |                  |                                                                          |                  |            |                                                     |            |           |                |       |                           |                   |                                                        |        |
| Processing temperature                                                                             | -35 ... +60 °C                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  |  |                                                                                         |                                     |                                                                                                    |                                      |                                |                                          |                                         |                                                    |           |                                                                                                      |              |                                                                                                                                             |                        |                |                 |                                                       |                                             |        |                                                     |        |                                                                              |                                                    |                                                                  |                  |                                                                          |                  |            |                                                     |            |           |                |       |                           |                   |                                                        |        |



| Commercial data       |                        |  |
|-----------------------|------------------------|--|
| Product Group         | 3 (Multi Conn. System) |  |
| PU (SPU)              | 10 pcs                 |  |
| Packaging type        | Box                    |  |
| Country of origin     | DE                     |  |
| GTIN                  | 4044918343350          |  |
| Customs tariff number | 85366990990            |  |

| Product classification |                      |  |
|------------------------|----------------------|--|
| UNSPSC                 | 39121409             |  |
| eCl@ss 10.0            | 27-44-03-09          |  |
| eCl@ss 9.0             | 27-44-03-09          |  |
| ETIM 9.0               | EC002638             |  |
| ETIM 8.0               | EC002638             |  |
| 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                    | Approval                                                                            | Standard | Certificate Name |
| CB<br>DEKRA Certification B.V.                                                     | IEC 61984 | NL-113351                           | Railway<br>WAGO GmbH & Co. KG                                                       | -        | Railway Ready    |
| CSA<br>DEKRA Certification B.V.                                                    | C22.2     | LR 18677-25                         |                                                                                     |          |                  |
| KEMA/KEUR<br>DEKRA Certification B.V.                                              | EN 61984  | 71-130478 REV.1                     |                                                                                     |          |                  |
| UL<br>Underwriters Laboratories Inc.                                               | UL 1059   | UL-US-<br>L45172-6187117-81111991-1 |                                                                                     |          |                  |
| 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 |
| BV<br>Bureau Veritas S.A.                                                          | IEC 60998 | 11915/D0 BV      |
| DNV<br>DNV GL SE                                                                   | -         | TAE000016Z       |



Downloads

Environmental Product Compliance

Compliance Search

Environmental Product Compliance  
231-124/027-000

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Documentation

Additional Information

Technical Section03.04.2019pdf2027.26 KB

↓

CAD/CAE-Data

CAD data

2D/3D Models  
231-124/027-000

↓

CAE data

EPLAN Data Portal  
231-124/027-000

↓

ZUKEN Portal  
231-124/027-000

↓

1 Compatible Products

1.1 System counterpart

1.1.1 Male connector/plug



Item No.: 231-624  
1-conductor male connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; gray



Item No.: 231-454/001-000  
THT male header; 1.0 x 1.0 mm solder pin; angled; Pin spacing 5 mm; 24-pole; gray



Item No.: 231-154/001-000  
THT male header; 1.0 x 1.0 mm solder pin; straight; Pin spacing 5 mm; 24-pole; gray

1.2 Optional Accessories

1.2.1 Cover

1.2.1.1 Cover



Item No.: 231-668  
Lockout caps; for covering unused clamping units; gray



1.2.2 Ferrule

1.2.2.1 Ferrule

|                                                                                                                                                                                                    |                                                                                                                                                                                        |                                                                                                                                                                                        |                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                   |                                                                                                       |                                                                                                       |                                                                                                     |
| <p><b>Item No.: 216-301</b><br/>Ferrule; Sleeve for 0.25 mm² / AWG 24; insulated; electro-tin plated; yellow</p>                                                                                   | <p><b>Item No.: 216-302</b><br/>Ferrule; Sleeve for 0.34 mm² / 22 AWG; insulated; electro-tin plated; light turquoise</p>                                                              | <p><b>Item No.: 216-201</b><br/>Ferrule; Sleeve for 0.5 mm² / 20 AWG; insulated; electro-tin plated; electrolytic copper; acc. to DIN 46228, Part 4/09.90; white</p>                   | <p><b>Item No.: 216-241</b><br/>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</p> |
|                                                                                                                   |                                                                                                       |                                                                                                       |                                                                                                     |
| <p><b>Item No.: 216-141</b><br/>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</p>                 | <p><b>Item No.: 216-101</b><br/>Ferrule; Sleeve for 0.5 mm² / AWG 22; un-insulated; electro-tin plated; silver-colored</p>                                                             | <p><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; gray</p> | <p><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; gray</p> |
|                                                                                                                   |                                                                                                       |                                                                                                       |                                                                                                     |
| <p><b>Item No.: 216-202</b><br/>Ferrule; Sleeve for 0.75 mm² / 18 AWG; insulated; electro-tin plated; gray</p>                                                                                     | <p><b>Item No.: 216-142</b><br/>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</p>    | <p><b>Item No.: 216-102</b><br/>Ferrule; Sleeve for 0.75 mm² / AWG 20; un-insulated; electro-tin plated; silver-colored</p>                                                            | <p><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; red</p>     |
|                                                                                                                   |                                                                                                       |                                                                                                       |                                                                                                     |
| <p><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; red</p>                 | <p><b>Item No.: 216-203</b><br/>Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated; red</p>                                                                             | <p><b>Item No.: 216-103</b><br/>Ferrule; Sleeve for 1 mm² / AWG 18; un-insulated; electro-tin plated</p>                                                                               | <p><b>Item No.: 216-143</b><br/>Ferrule; Sleeve for 1 mm² / AWG 18; un-insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92</p>       |
|                                                                                                                 |                                                                                                     |                                                                                                     |                                                                                                   |
| <p><b>Item No.: 216-204</b><br/>Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; black</p>                                                                                     | <p><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; black</p> | <p><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; black</p> | <p><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; black</p> |
|                                                                                                                 |                                                                                                     |                                                                                                     |                                                                                                                                                                                        |
| <p><b>Item No.: 216-144</b><br/>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</p> | <p><b>Item No.: 216-104</b><br/>Ferrule; Sleeve for 1.5 mm² / AWG 16; un-insulated; electro-tin plated; silver-colored</p>                                                             | <p><b>Item No.: 216-106</b><br/>Ferrule; Sleeve for 2.5 mm² / AWG 14; un-insulated; electro-tin plated; silver-colored</p>                                                             |                                                                                                                                                                                        |

1.2.3 Insulation stop

1.2.3.1 Insulation stop

|                                                                                        |                                                                                     |                                                                                      |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|     |  |  |
| <p><b>Item No.: 231-670</b><br/>Insulation stop; 0.08-0.2 mm² / 0.2 mm² "s"; white</p> | <p><b>Item No.: 231-671</b><br/>Insulation stop; 0.25 - 0.5 mm²; light gray</p>     | <p><b>Item No.: 231-672</b><br/>Insulation stop; 0.75 - 1 mm²; dark gray</p>         |



1.2.4 Jumper

1.2.4.1 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

1.2.5 Marking

1.2.5.1 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

1.2.6 Test and measurement

1.2.6.1 Testing accessories



**Item No.: 210-136**  
Test plug; 2 mm Ø; with 500 mm cable; red



**Item No.: 231-661**  
Test plugs for female connectors; for 5 mm and 5.08 mm pin spacing; 2,50 mm<sup>2</sup>; light gray

1.2.7 Tool

1.2.7.1 Operating tool



**Item No.: 231-231**  
Combination operating tool; red



**Item No.: 209-132**  
Operating tool; for connecting comb-style jumper bar; made of insulating material; 2-way; natural



**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 (1-1/2-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

1.2.7.1 Operating tool



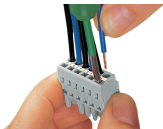
**Item No.: 280-438**  
Operating tool; made of insulating material; 8-way; white



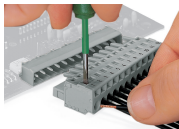
**Item No.: 231-159**  
Operating tool; natural

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).



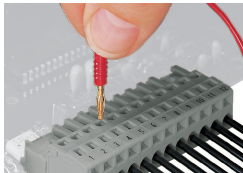
Inserting a conductor via operating tool.

Coding



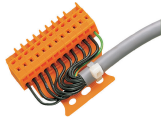
Coding a female connector by removing coding finger(s).

Testing

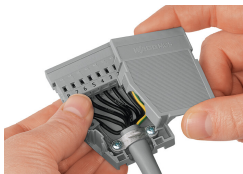


Testing – female connector with CAGE CLAMP®  
Integrated test ports for testing perpendicular to conductor entry via 2 or 2.3 mm Ø test plug

Installation



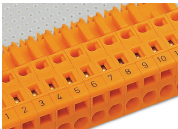
Male connector with strain relief plate



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



Marking



Labeling via direct marking or self-adhesive strips.