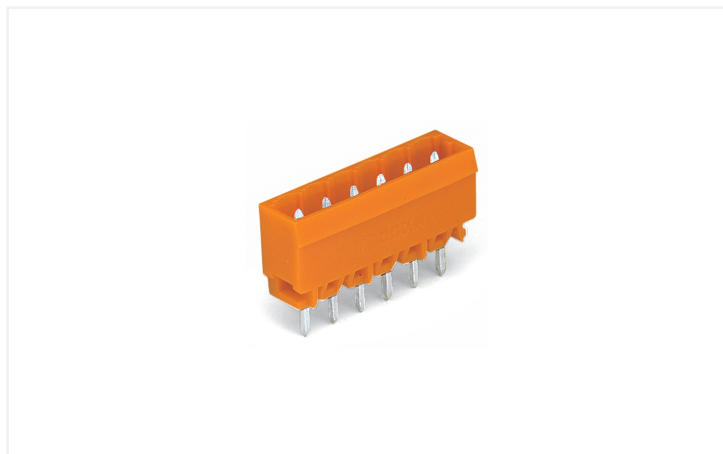


## Data Sheet | Item Number: 231-352/001-000

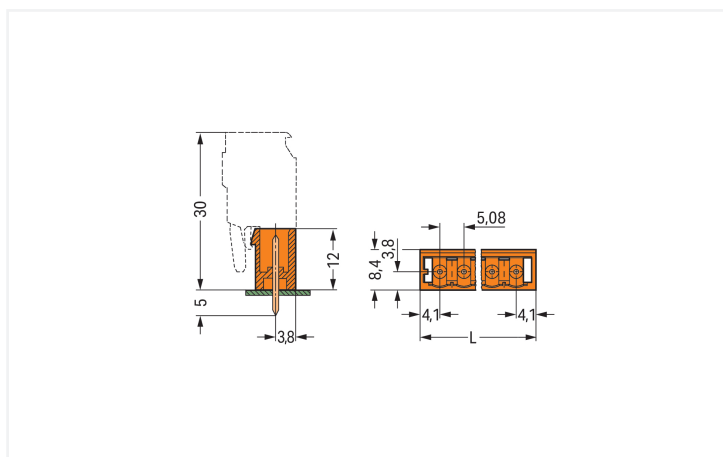
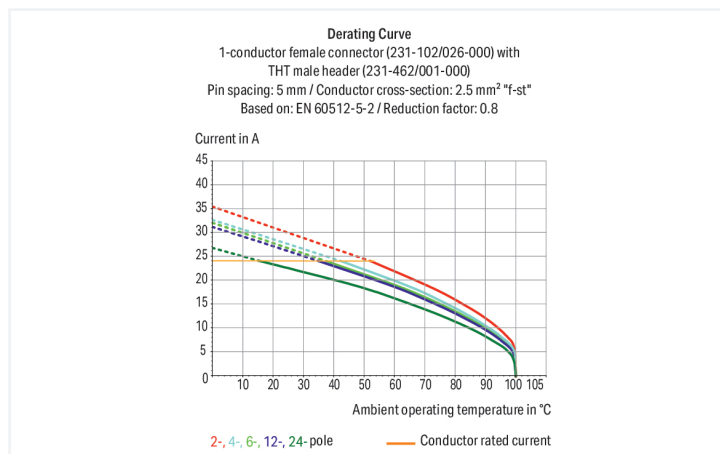
THT male header; 1.0 x 1.0 mm solder pin; straight; Pin spacing 5.08 mm; 22-pole;  
orange

<https://www.wago.com/231-352/001-000>



Color: ■ orange

Similar to illustration



Dimensions in mm

$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$

Male connector, 231 Series, orange

Our male connector (item number 231-352/001-000) simplifies electrical installations. The item's dimensions are (114.88 x 17 x 8.4) mm (width x height x depth).

Tin is used for coating the contact surfaces. The pcb connector is designed for THT soldering.



| Notes              |                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety Information | The MCS – MULTI CONNECTION SYSTEM includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors must not be connected/disconnected when live or under load. When used as intended, these connectors must not be connected/disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated. |
| Variants:          | Other pole numbers<br>3.8 mm pin projection for male headers with straight solder pins<br>Gold-plated or partially gold-plated contact surfaces<br>Other versions (or variants) can be requested from WAGO Sales or configured at <a href="https://configurator.wago.com/">https://configurator.wago.com/</a> .                                                                                                         |

| Electrical data                 |       |                |       |
|---------------------------------|-------|----------------|-------|
| Ratings per                     |       | IEC/EN 60664-1 |       |
| Overvoltage category            | III   | III            | II    |
| Pollution degree                | 3     | 2              | 2     |
| Nominal voltage                 | 320 V | 320 V          | 630 V |
| Rated impulse withstand voltage | 4 kV  | 4 kV           | 4 kV  |
| Rated current                   | 12 A  | 12 A           | 12 A  |
| Approvals per                   |       | UL 1059        |       |
| Use group                       | B     | C              | D     |
| Rated voltage                   | 300 V | -              | 300 V |
| Rated current                   | 10 A  | -              | 10 A  |
| Approvals per                   |       | UL 1977        |       |
| Rated voltage                   | 600 V |                |       |
| Rated current                   | 10 A  |                |       |
| Approvals per                   |       | CSA            |       |
| Use group                       | B     | C              | D     |
| Rated voltage                   | 300 V | -              | 300 V |
| Rated current                   | 10 A  | -              | 10 A  |

| Connection Data            |    |
|----------------------------|----|
| Total number of potentials | 22 |
| Number of connection types | 1  |
| Number of levels           | 1  |
| Connection 1               |    |
| Pole number                | 22 |

| Physical data           |                          |
|-------------------------|--------------------------|
| Pin spacing             | 5.08 mm / 0.2 inches     |
| Width                   | 114.88 mm / 4.523 inches |
| Height                  | 17 mm / 0.669 inches     |
| Height from the surface | 12 mm / 0.472 inches     |
| Depth                   | 8.4 mm / 0.331 inches    |
| Solder pin length       | 5 mm                     |
| Solder pin dimensions   | 1 x 1 mm                 |
| !                       | 1.4 (+0.1) mm            |

| Mechanical data          |     |
|--------------------------|-----|
| Variable coding          | Yes |
| Anti-rotation protection | Yes |



| Plug-in connection                 |                     |
|------------------------------------|---------------------|
| Contact type (pluggable connector) | Male connector/plug |
| Connector (connection type)        | for PCB             |
| Mismating protection               | No                  |
| Mating direction to the PCB        | 90 °                |

| PCB contact                         |                                          |
|-------------------------------------|------------------------------------------|
| PCB contact                         | THT                                      |
| Solder pin arrangement              | over the entire male connector (in-line) |
| Number of solder pins per potential | 1                                        |

| Material data                      |                                                                          |
|------------------------------------|--------------------------------------------------------------------------|
| Note (material data)               | <a href="#">Information on material specifications can be found here</a> |
| Color                              | orange                                                                   |
| Material group                     | I                                                                        |
| Insulation material (main housing) | Polyamide (PA66)                                                         |
| Flammability class per UL94        | V0                                                                       |
| Contact material                   | Electrolytic copper (E <sub>Cu</sub> )                                   |
| Contact Plating                    | Tin                                                                      |
| Fire load                          | 0.123 MJ                                                                 |
| Weight                             | 6.9 g                                                                    |

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



| Environmental Testing                                                 |                                           |
|-----------------------------------------------------------------------|-------------------------------------------|
| Acceleration                                                          | 5g (highest test level used for all axes) |
| Shock duration                                                        | 30 ms                                     |
| Number of shocks (per axis)                                           | 3 pos. und 3 neg.                         |
| Test directions                                                       | X, Y and Z axes                           |
| Extended testing: Monitoring of contact faults and interruptions      | Passed                                    |
| Extended testing: Voltage drop measurement before and after each axis | Passed                                    |
| Vibration and shock stress for rolling stock equipment                | Passed                                    |

| Commercial data       |                        |
|-----------------------|------------------------|
| Product Group         | 3 (Multi Conn. System) |
| PU (SPU)              | 50 pcs                 |
| Packaging type        | Box                    |
| Country of origin     | PL                     |
| GTIN                  | 4044918865951          |
| Customs tariff number | 85366930000            |

| Product Classification |                      |
|------------------------|----------------------|
| UNSPSC                 | 39121409             |
| eCl@ss 10.0            | 27-44-04-02          |
| eCl@ss 9.0             | 27-44-04-02          |
| ETIM 9.0               | EC002637             |
| ETIM 10.0              | EC002637             |
| 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     | 1466354          |                                                                                     |          |                  |
| KEMA/KEUR<br>DEKRA Certification B.V.                                                                                                                                                                                                                                                                                                          | EN 61984  | 71-130478 REV.1  |                                                                                     |          |                  |
| UL<br>UL International Germany GmbH                                                                                                                                                                                                                                                                                                            | UL 1977   | E45171           |                                                                                     |          |                  |
| UR<br>Underwriters Laboratories Inc.                                                                                                                                                                                                                                                                                                           | UL 1059   | E45172           |                                                                                     |          |                  |



Approvals for marine applications



| Approval                                | Standard | Certificate Name |
|-----------------------------------------|----------|------------------|
| ABS<br>American Bureau of Ship-<br>ping | -        | 24-0095975-PDA   |

Downloads

Environmental Product Compliance

| Compliance Search                                      |
|--------------------------------------------------------|
| Environmental Product<br>Compliance<br>231-352/001-000 |



Documentation

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



CAD/CAE-Data

| CAD data                        |
|---------------------------------|
| 2D/3D Models<br>231-352/001-000 |



| CAE data                             |
|--------------------------------------|
| EPLAN Data Portal<br>231-352/001-000 |



|                                 |
|---------------------------------|
| ZUKEN Portal<br>231-352/001-000 |
|---------------------------------|



| PCB Design                                                     |
|----------------------------------------------------------------|
| Symbol and Footprint<br>via SamacSys<br>231-352/001-000        |
| Symbol and Footprint<br>via Ultra Librarian<br>231-352/001-000 |



1 Compatible Products

1.1 System counterpart

1.1.1 Female connector/socket



[Item No.: 232-322/026-000](#)  
1-conductor female connector, angled;  
CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08  
mm; 22-pole; 2,50 mm²; orange



[Item No.: 232-422/026-000](#)  
1-conductor female connector, angled;  
CAGE CLAMP®; 2.5 mm²; Pin spacing  
5.08 mm; 22-pole; 2,50 mm²; orange



[Item No.: 231-321/027-000](#)  
1-conductor female connector; CAGE  
CLAMP®; 2.5 mm²; Pin spacing 5.08 mm;  
21-pole; clamping collar; orange



[Item No.: 231-322/031-000](#)  
1-conductor female connector; CAGE  
CLAMP®; 2.5 mm²; Pin spacing 5.08 mm;  
22-pole; clamping collar; orange

1.1.1 Female connector/socket



**Item No.: 231-322/037-000**  
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 22-pole; Lateral locking levers; orange



**Item No.: 231-322/026-000**  
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 22-pole; orange



**Item No.: 231-322/102-000**  
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 22-pole; with integrated end plate; orange



**Item No.: 2231-322/026-000**  
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 22-pole; 2,50 mm²; orange



**Item No.: 2231-322/031-000**  
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 22-pole; clamping collar; 2,50 mm²; orange



**Item No.: 2231-322/037-000**  
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 22-pole; Lateral locking levers; 2,50 mm²; orange



**Item No.: 2231-322/102-000**  
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 22-pole; with integrated end plate; 2,50 mm²; orange

1.2 Optional Accessories

1.2.1 Coding

1.2.1.1 Coding



**Item No.: 231-129**  
Coding key; snap-on type; light gray

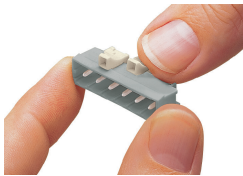
1.2.1.2 Intermediate plate



**Item No.: 231-500**  
Spacer; for formation of groups; light gray

Installation Notes

Coding



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