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Double-mini flange terminal block, nom. voltage: 800 V, nominal current: 24 A, number of connections: 4, connection method: Spring-cage connection, 1 level, Rated cross section: 2.5 mm<sup>2</sup>, cross section: 0.08 mm<sup>2</sup> - 4 mm<sup>2</sup>, mounting type: direct screw connection, color: gray

Your advantages

- Space saving thanks to compact design and mounting option on a 15 mm DIN rail
- Clear arrangement thanks to marking of all terminal points
- Easy potential distribution thanks to standardized plug-in bridges

Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 3249172             |
| Packing unit                         | 50 pc               |
| Minimum order quantity               | 50 pc               |
| Sales key                            | BE02                |
| Product key                          | BE2165              |
| Catalog page                         | Page 303 (C-3-2013) |
| GTIN                                 | 4046356166379       |
| Weight per piece (including packing) | 6.396 g             |
| Weight per piece (excluding packing) | 3.12 g              |
| Customs tariff number                | 85369010            |
| Country of origin                    | CN                  |

# MSDBV 2,5-F - Double-mini flange terminal block



3249172

<https://www.phoenixcontact.com/us/products/3249172>

## Technical data

### Product properties

|                       |                          |
|-----------------------|--------------------------|
| Product type          | Miniature terminal block |
| Number of connections | 4                        |
| Number of rows        | 1                        |

### Insulation characteristics

|                      |     |
|----------------------|-----|
| Overvoltage category | III |
| Degree of pollution  | 3   |

### Electrical properties

|                                                 |        |
|-------------------------------------------------|--------|
| Rated surge voltage                             | 8 kV   |
| Maximum power dissipation for nominal condition | 0.77 W |

### Connection data

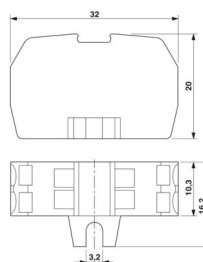
|                                 |                     |
|---------------------------------|---------------------|
| Number of connections per level | 2                   |
| Nominal cross section           | 2.5 mm <sup>2</sup> |

#### 1 level

|                                                                                           |                                                       |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Stripping length                                                                          | 8 mm                                                  |
| Connection in acc. with standard                                                          | IEC 60947-7-1                                         |
| Conductor cross section rigid                                                             | 0.08 mm <sup>2</sup> ... 4 mm <sup>2</sup>            |
| Cross section AWG                                                                         | 28 ... 12 (converted acc. to IEC)                     |
| Conductor cross section flexible                                                          | 0.08 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>          |
| Conductor cross section, flexible [AWG]                                                   | 28 ... 14 (converted acc. to IEC)                     |
| Conductor cross-section flexible (ferrule without plastic sleeve)                         | 0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>          |
| Flexible conductor cross section (ferrule with plastic sleeve)                            | 0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>          |
| 2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve | 0.5 mm <sup>2</sup>                                   |
| Nominal current                                                                           | 24 A                                                  |
| Maximum load current                                                                      | 30 A (with 4 mm <sup>2</sup> conductor cross section) |
| Nominal voltage                                                                           | 800 V                                                 |
| Nominal cross section                                                                     | 2.5 mm <sup>2</sup>                                   |
| Connection in acc. with standard                                                          | IEC/EN 60079-7                                        |

### Dimensions

#### Dimensional drawing



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|                 |         |
|-----------------|---------|
| Width           | 10.4 mm |
| End cover width | 4 mm    |
| Height          | 32 mm   |
| Depth           | 22 mm   |
| Hole diameter   | 3.2 mm  |

## Material specifications

|                                                                         |             |
|-------------------------------------------------------------------------|-------------|
| Color                                                                   | gray        |
| Flammability rating according to UL 94                                  | V0          |
| Insulating material group                                               | I           |
| Insulating material                                                     | PA          |
| Static insulating material application in cold                          | -60 °C      |
| Temperature index of insulation material (DIN EN 60216-1 (VDE 0304-21)) | 130 °C      |
| Relative insulation material temperature index (Elec., UL 746 B)        | 130 °C      |
| Fire protection for rail vehicles (DIN EN 45545-2) R22                  | HL 1 - HL 3 |
| Fire protection for rail vehicles (DIN EN 45545-2) R23                  | HL 1 - HL 3 |
| Fire protection for rail vehicles (DIN EN 45545-2) R24                  | HL 1 - HL 3 |
| Fire protection for rail vehicles (DIN EN 45545-2) R26                  | HL 1 - HL 3 |
| Calorimetric heat release NFPA 130 (ASTM E 1354)                        | 28 MJ/kg    |
| Surface flammability NFPA 130 (ASTM E 162)                              | passed      |
| Specific optical density of smoke NFPA 130 (ASTM E 662)                 | passed      |
| Smoke gas toxicity NFPA 130 (SMP 800C)                                  | passed      |

## Electrical tests

### Surge voltage test

|                       |             |
|-----------------------|-------------|
| Test voltage setpoint | 9.8 kV      |
| Result                | Test passed |

### Temperature-rise test

|                                                  |                                     |
|--------------------------------------------------|-------------------------------------|
| Requirement temperature-rise test                | Increase in temperature $\leq 45$ K |
| Result                                           | Test passed                         |
| Short-time withstand current 2.5 mm <sup>2</sup> | 0.3 kA                              |
| Short-time withstand current 4 mm <sup>2</sup>   | 0.48 kA                             |
| Result                                           | Test passed                         |

### Power-frequency withstand voltage

|                       |             |
|-----------------------|-------------|
| Test voltage setpoint | 2 kV        |
| Result                | Test passed |

## Mechanical properties

### Mechanical data

|                 |     |
|-----------------|-----|
| Open side panel | Yes |
|-----------------|-----|

## Mechanical tests

# MSDBV 2,5-F - Double-mini flange terminal block



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## Mechanical strength

|        |             |
|--------|-------------|
| Result | Test passed |
|--------|-------------|

## Test for conductor damage and slackening

|                                |                               |
|--------------------------------|-------------------------------|
| Rotation speed                 | 10 rpm                        |
| Revolutions                    | 135                           |
| Conductor cross section/weight | 0.08 mm <sup>2</sup> / 0.1 kg |
|                                | 2.5 mm <sup>2</sup> / 0.7 kg  |
|                                | 4 mm <sup>2</sup> / 0.9 kg    |
| Result                         | Test passed                   |

## Environmental and real-life conditions

### Aging

|                    |             |
|--------------------|-------------|
| Temperature cycles | 192         |
| Result             | Test passed |

### Needle-flame test

|                  |             |
|------------------|-------------|
| Time of exposure | 30 s        |
| Result           | Test passed |

### Oscillation/broadband noise

|                        |                                                     |
|------------------------|-----------------------------------------------------|
| Specification          | DIN EN 50155 (VDE 0115-200):2008-03                 |
| Spectrum               | Service life test category 1, class B, body mounted |
| Frequency              | $f_1 = 5 \text{ Hz}$ to $f_2 = 150 \text{ Hz}$      |
| ASD level              | 0.02g <sup>2</sup> /Hz                              |
| Acceleration           | 0.8g                                                |
| Test duration per axis | 5 h                                                 |
| Test directions        | X-, Y- and Z-axis                                   |
| Result                 | Test passed                                         |

### Shocks

|                                |                                     |
|--------------------------------|-------------------------------------|
| Specification                  | DIN EN 50155 (VDE 0115-200):2008-03 |
| Pulse shape                    | Half-sine                           |
| Acceleration                   | 5g                                  |
| Shock duration                 | 30 ms                               |
| Number of shocks per direction | 3                                   |
| Test directions                | X-, Y- and Z-axis (pos. and neg.)   |
| Result                         | Test passed                         |

### Ambient conditions

|                                         |                                                                                                                              |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Ambient temperature (operation)         | -60 °C ... 110 °C (Operating temperature range incl. self-heating; for max. short-term operating temperature, see RTI Elec.) |
| Ambient temperature (storage/transport) | -25 °C ... 60 °C (for a short time, no longer than 24 h, -60°C to +70°C)                                                     |
| Ambient temperature (assembly)          | -5 °C ... 70 °C                                                                                                              |
| Ambient temperature (actuation)         | -5 °C ... 70 °C                                                                                                              |

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|                                          |               |
|------------------------------------------|---------------|
| Permissible humidity (operation)         | 20 % ... 90 % |
| Permissible humidity (storage/transport) | 30 % ... 70 % |

## Standards and regulations

|                                  |                |
|----------------------------------|----------------|
| Connection in acc. with standard | IEC 60947-7-1  |
|                                  | IEC/EN 60079-7 |

## Mounting

|               |                         |
|---------------|-------------------------|
| Mounting type | direct screw connection |
|---------------|-------------------------|

# MSDBV 2,5-F - Double-mini flange terminal block



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## Drawings

### Circuit diagram



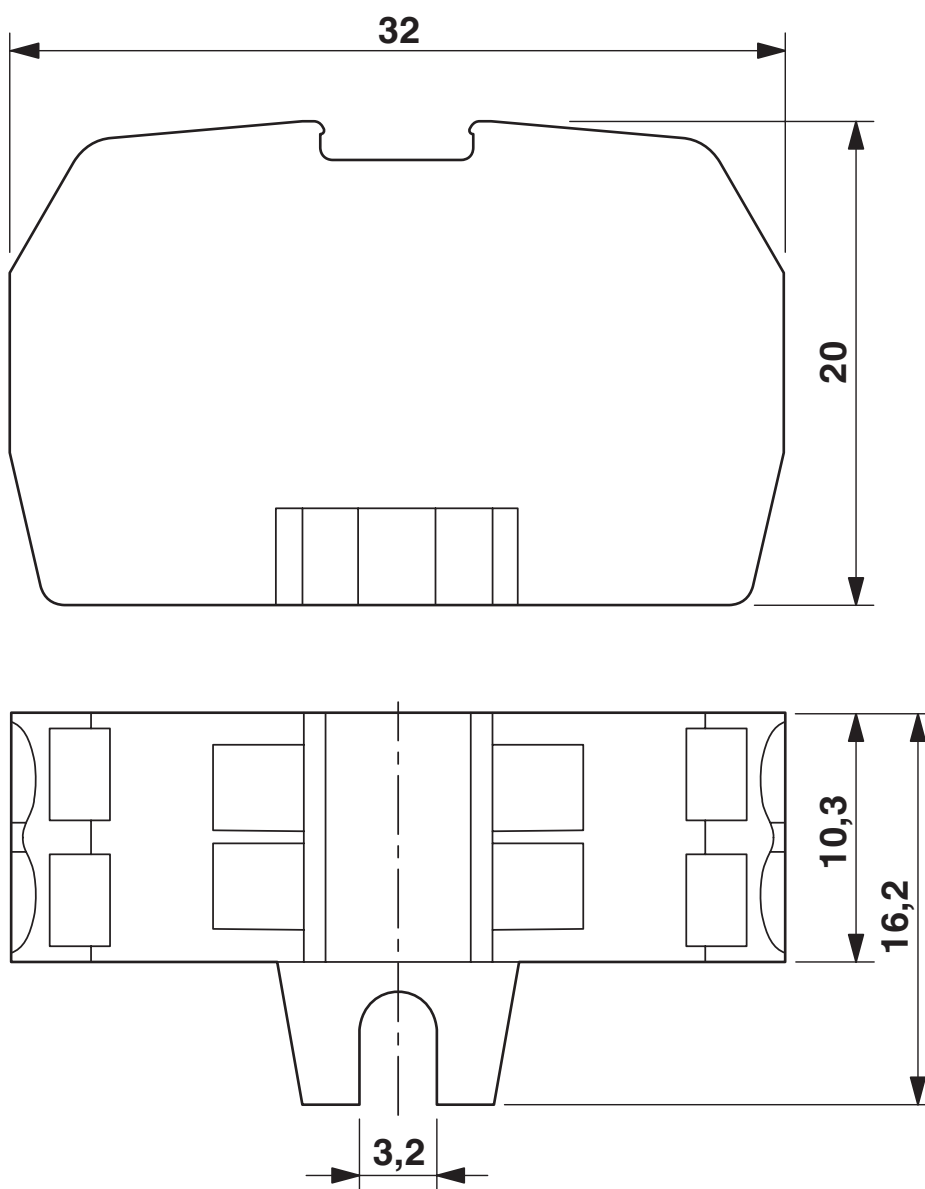
# MSDBV 2,5-F - Double-mini flange terminal block



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Dimensional drawing



# MSDBV 2,5-F - Double-mini flange terminal block



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/3249172>

| CSA<br>Approval ID: 13631 |                       |                       |                   |                             |
|---------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                           | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B               | 600 V                 | 20 A                  | 28 - 12           | -                           |
| Use group C               | 600 V                 | 20 A                  | 28 - 12           | -                           |
| Use group D               | 600 V                 | 20 A                  | 28 - 12           | -                           |

| CB<br>IECEE CB Scheme<br>Approval ID: DE1-62820 |                       |                       |                   |                             |
|-------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                 | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|                                                 | 800 V                 | 24 A                  | -                 | 0.2 - 2.5                   |

| EAC<br>Approval ID: RU C-DE.BL08.B.00644 |  |  |  |  |
|------------------------------------------|--|--|--|--|
|------------------------------------------|--|--|--|--|

| VDE<br>VDE Zeichengenehmigung<br>Approval ID: 40029769 |                       |                       |                   |                             |
|--------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                        | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|                                                        | 800 V                 | 24 A                  | -                 | 0.2 - 2.5                   |

| cULus<br>cULus Recognized<br>Approval ID: E60425 |                       |                       |                   |                             |
|--------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B                                      | 600 V                 | 20 A                  | 28 - 12           | -                           |
| Use group C                                      | 600 V                 | 20 A                  | 28 - 12           | -                           |
| Use group D                                      | 600 V                 | 5 A                   | 28 - 12           | -                           |

# MSDBV 2,5-F - Double-mini flange terminal block



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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27141120 |
| ECLASS-13.0 | 27250101 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC000897 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121400 |
|-------------|----------|

# MSDBV 2,5-F - Double-mini flange terminal block



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## Environmental product compliance

|                                         |                                          |
|-----------------------------------------|------------------------------------------|
| EU RoHS                                 |                                          |
| Fulfills EU RoHS substance requirements | Yes, No exemptions                       |
| China RoHS                              |                                          |
| Environment friendly use period (EFUP)  | EFUP-E                                   |
|                                         | No hazardous substances above the limits |
| EU REACH SVHC                           |                                          |
| REACH candidate substance (CAS No.)     | No substance above 0.1 wt%               |

# MSDBV 2,5-F - Double-mini flange terminal block



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## Accessories



Note: Applying some accessories below might limit this product.

### ESB 2-MZDB - Insertion bridge

3029703

<https://www.phoenixcontact.com/us/products/3029703>

Insertion bridge, pitch: 6.2 mm, number of positions: 2, color: gray



Max. current carrying capacity: 24 A

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### D-MSBV 2,5-F - End cover

3251021

<https://www.phoenixcontact.com/us/products/3251021>

End cover, depth: 20 mm, width: 9.9 mm, height: 32 mm, color: gray



# MSDBV 2,5-F - Double-mini flange terminal block



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<https://www.phoenixcontact.com/us/products/3249172>

## ZBF 5:UNBEDRUCKT - Zack Marker strip, flat

0808642

<https://www.phoenixcontact.com/us/products/0808642>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.1 x 5.2 mm, Number of individual labels: 10

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## ZBF 5 CUS - Zack Marker strip, flat

0825025

<https://www.phoenixcontact.com/us/products/0825025>



Zack Marker strip, flat, can be ordered: Strip, white, labeled according to customer specifications, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

# MSDBV 2,5-F - Double-mini flange terminal block



3249172

<https://www.phoenixcontact.com/us/products/3249172>

## ZBF 5,LGS:FORTL.ZAHLEN - Zack Marker strip, flat

0808671

<https://www.phoenixcontact.com/us/products/0808671>



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 491 ... 500, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

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## ZBF 5,QR:FORTL.ZAHLEN - Zack Marker strip, flat

0808697

<https://www.phoenixcontact.com/us/products/0808697>



Zack Marker strip, flat, Strip, white, labeled, Printed vertically: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... 100, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

# MSDBV 2,5-F - Double-mini flange terminal block



3249172

<https://www.phoenixcontact.com/us/products/3249172>

## ZBF 5,LGS:GERADE ZAHLEN - Zack Marker strip, flat

0810821

<https://www.phoenixcontact.com/us/products/0810821>



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive even numbers 2 ... 20, 22 ... 40, etc. up to 82 ... 100, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

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## ZBF 5,LGS:UNGERADE ZAHLEN - Zack Marker strip, flat

0810863

<https://www.phoenixcontact.com/us/products/0810863>



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: Odd numbers 1 - 19, 21 - 39, etc. up to 81 - 99, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

# MSDBV 2,5-F - Double-mini flange terminal block



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<https://www.phoenixcontact.com/us/products/3249172>

## UC-TMF 5 - Marker for terminal blocks

0818153

<https://www.phoenixcontact.com/us/products/0818153>



Marker for terminal blocks, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 5.2 mm, lettering field size: 4.6 x 5.1 mm, Number of individual labels: 96

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## UC-TMF 5 CUS - Marker for terminal blocks

0824638

<https://www.phoenixcontact.com/us/products/0824638>



Marker for terminal blocks, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: snap into flat marker groove, for terminal block width: 5.2 mm, lettering field size: 4.6 x 5.1 mm, Number of individual labels: 96

# MSDBV 2,5-F - Double-mini flange terminal block



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<https://www.phoenixcontact.com/us/products/3249172>

## UCT-TMF 5 - Marker for terminal blocks

0828744

<https://www.phoenixcontact.com/us/products/0828744>



Marker for terminal blocks, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snapped, for terminal block width: 5.2 mm, lettering field size: 4.4 x 4.7 mm, Number of individual labels: 72

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## UCT-TMF 5 CUS - Marker for terminal blocks

0829658

<https://www.phoenixcontact.com/us/products/0829658>



Marker for terminal blocks, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: snap into flat marker groove, for terminal block width: 5.2 mm, lettering field size: 4.4 x 4.7 mm, Number of individual labels: 72

# MSDBV 2,5-F - Double-mini flange terminal block



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<https://www.phoenixcontact.com/us/products/3249172>

## SZF 1-0,6X3,5 - Screwdriver

1204517

<https://www.phoenixcontact.com/us/products/1204517>



Actuation tool, for ST terminal blocks, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

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## ST-BW - Actuation tool

1207608

<https://www.phoenixcontact.com/us/products/1207608>



Actuation tool, for all 2.5 mm<sup>2</sup> - 4.0 mm<sup>2</sup> spring-cages

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