

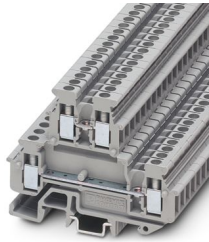
# MBKKB 2,5 - Mini feed-through terminal block



1414064

<https://www.phoenixcontact.com/us/products/1414064>

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Mini feed-through terminal block, nom. voltage: 500 V, nominal current: 24 A, connection method: Screw connection, 1st and 2nd level, Rated cross section: 2.5 mm<sup>2</sup>, cross section: 0.2 mm<sup>2</sup> - 4 mm<sup>2</sup>, mounting type: NS 15, NS 35/7,5, NS 35/15, color: gray

## Your advantages

- Fixed bridges and test sockets can be used on both levels
- 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                          | 1414064       |
| Packing unit                         | 50 pc         |
| Minimum order quantity               | 50 pc         |
| Sales key                            | BE12          |
| Product key                          | BE1264        |
| GTIN                                 | 4017918021313 |
| Weight per piece (including packing) | 11.33 g       |
| Weight per piece (excluding packing) | 10.413 g      |
| Customs tariff number                | 85369010      |
| Country of origin                    | CN            |

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## Technical data

### Product properties

|                       |                          |
|-----------------------|--------------------------|
| Product type          | Miniature terminal block |
| Number of connections | 4                        |
| Number of rows        | 2                        |
| Potentials            | 2                        |

### Insulation characteristics

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

### Electrical properties

|   |        |
|---|--------|
| Rated surge voltage                             | 6 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> |

### 1st and 2nd level

|   |   |
|---|---|
| Connection method   | Screw connection                                      |
| Screw thread  | M3  |
| Tightening torque   | 0.5 ... 0.6 Nm  |
| Stripping length  | 7 mm  |
| Internal cylindrical gage   | A3  |
| Connection in acc. with standard  | IEC 60947-7-1   |
| Conductor cross-section rigid   | 0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>             |
| Cross section AWG   | 24 ... 12 (converted acc. to IEC)                     |
| Conductor cross-section flexible  | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>          |
| Conductor cross-section, flexible [AWG]   | 24 ... 14 (converted acc. to IEC)                     |
| Conductor cross-section flexible (ferrule without plastic sleeve)                         | 0.25 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>          |
| Flexible conductor cross-section (ferrule with plastic sleeve)                            | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>          |
| Cross-section with insertion bridge, rigid  | 2.5 mm <sup>2</sup>                                   |
| Cross-section with insertion bridge, flexible   | 2.5 mm <sup>2</sup>                                   |
| 2 conductors with same cross section, rigid   | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>           |
| 2 conductors with same cross section, flexible  | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>           |
| 2 conductors with same cross section, flexible, with ferrule without plastic sleeve       | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>          |
| 2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve | 0.5 mm <sup>2</sup> ... 1 mm <sup>2</sup>             |
| Nominal cross section   | 2.5 mm <sup>2</sup>                                   |
| Nominal current   | 24 A  |
| Maximum load current  | 24 A (with 4 mm <sup>2</sup> conductor cross-section) |
| Nominal voltage   | 500 V   |

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## Ex data

### Rated data (ATEX/IECEx)

|                             |  |
|-----------------------------|--|
| Identification              | ⊕ II 2 G Ex eb IIC Gb  |
| Operating temperature range | -50 °C ... 110 °C  |
| Ex-certified accessories    | 1413052 D-MBKKB 2,5<br>1413065 DP-MBKKB 2,5<br>1205053 SZS 0,6X3,5<br>3022218 CLIPFIX 35<br>1401637 E/MBK  |
| List of bridges             | Fixed bridge / FBRNI 2-5 N / 3000175<br>Fixed bridge / FBRNI 3-5 N / 3000162<br>Fixed bridge / FBRNI 4-5 N / 3000159<br>Fixed bridge / FBRNI 5-5 N / 3000146<br>Fixed bridge / FBRNI 6-5 N / 3000133<br>Fixed bridge / FBRNI 7-5 N / 3000230<br>Fixed bridge / FBRNI 8-5 N / 3000243<br>Fixed bridge / FBRNI 9-5 N / 3000298<br>Fixed bridge / FBRNI 10-5 N / 2770639<br>Fixed bridge / FBRNI 20-5 N / 3000609 |
| Bridge data                 | 19 A / 2.5 mm <sup>2</sup>   |
| Ex temperature increase     | 40 K (21 A / 2.5 mm <sup>2</sup> )   |
| for bridging with bridge    | 275 V  |
| Rated insulation voltage    | 250 V  |
| output                      | (Permanent)  |

### Ex level General

|                      |       |
|----------------------|-------|
| Rated voltage        | 275 V |
| Rated current        | 21 A  |
| Maximum load current | 26 A  |

### Ex connection data General

|   |   |
|---|---|
| Torque range  | 0.5 Nm ... 0.6 Nm                           |
| Nominal cross section                                 | 2.5 mm <sup>2</sup>                         |
| Rated cross section AWG                               | 14  |
| Connection capacity rigid                             | 0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>   |
| Connection capacity AWG                               | 24 ... 12                                   |
| Connection capacity flexible                          | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Connection capacity AWG                               | 24 ... 14                                   |
| 2 conductors with same cross section, solid           | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| 2 conductors with the same cross-section AWG rigid    | 24 ... 16                                   |
| 2 conductors with same cross section, stranded        | 0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| 2 conductors with the same cross-section AWG flexible | 24 ... 16                                   |
| output  | (Permanent)                                 |

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## Ex level Level 1

|                    |             |
|--------------------|-------------|
| Contact resistance | 0.5 mΩ      |
| output             | (Permanent) |

## Ex level Level 2

|                    |        |
|--------------------|--------|
| Contact resistance | 0.4 mΩ |
|--------------------|--------|

## Dimensions

|                    |         |
|--------------------|---------|
| Width              | 5.2 mm  |
| End cover width    | 2.5 mm  |
| Height             | 62 mm   |
| Depth on NS 15     | 47.5 mm |
| Depth on NS 35/7,5 | 48 mm   |
| Depth on NS 35/15  | 55.5 mm |

## Material specifications

|  |                 |
|--|-----------------|
| Color  | gray (RAL 7042) |
| Flammability rating according to UL 94                           | V2              |
| Insulating material group  | I               |
| Insulating material  | PA              |
| Static insulating material application in cold                   | -40 °C          |
| Relative insulation material temperature index (Elec., UL 746 B) | 125 °C          |

## Electrical tests

### Surge voltage test

|                       |             |
|-----------------------|-------------|
| Test voltage setpoint | 7.3 kV      |
| Result                | Test passed |

### Temperature-rise test

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

### Power-frequency withstand voltage

|                       |             |
|-----------------------|-------------|
| Test voltage setpoint | 1.89 kV     |
| Result                | Test passed |

## Mechanical properties

### Mechanical data

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

## Mechanical tests

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## Mechanical strength

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

## Attachment on the carrier

|                         |             |
|-------------------------|-------------|
| DIN rail/fixing support | NS 35/NS 15 |
| Test force setpoint     | 1 N         |
| Result                  | Test passed |

## Test for conductor damage and slackening

|                                |                               |
|--------------------------------|-------------------------------|
| Rotation speed                 | 10 (+/- 2) rpm                |
| Revolutions                    | 135                           |
| Conductor cross-section/weight | 0.25 mm <sup>2</sup> / 0.2 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

### Needle-flame test

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

### Oscillation/broadband noise

|                        |  |
|------------------------|--|
| Specification          | DIN EN 50155 (VDE 0115-200):2018-05            |
| Spectrum               | Long life test category 2, bogie-mounted       |
| Frequency              | $f_1 = 5 \text{ Hz}$ to $f_2 = 250 \text{ Hz}$ |
| ASD level              | 6.12 (m/s <sup>2</sup> ) <sup>2</sup> /Hz      |
| Acceleration           | 3.12g  |
| Test duration per axis | 5 h  |
| Test directions        | X-, Y- and Z-axis                              |
| Result                 | Test passed                                    |

### Shocks

|                                |                                   |
|--------------------------------|-----------------------------------|
| Pulse shape                    | Half-sine                         |
| Acceleration                   | 30g                               |
| Shock duration                 | 18 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)         | -40 °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, not exceeding 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 |
|----------------------------------|---------------|

## Mounting

|               |           |
|---------------|-----------|
| Mounting type | NS 15     |
|               | NS 35/7,5 |
|               | NS 35/15  |

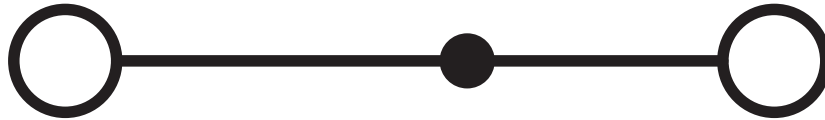
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## Drawings

Circuit diagram

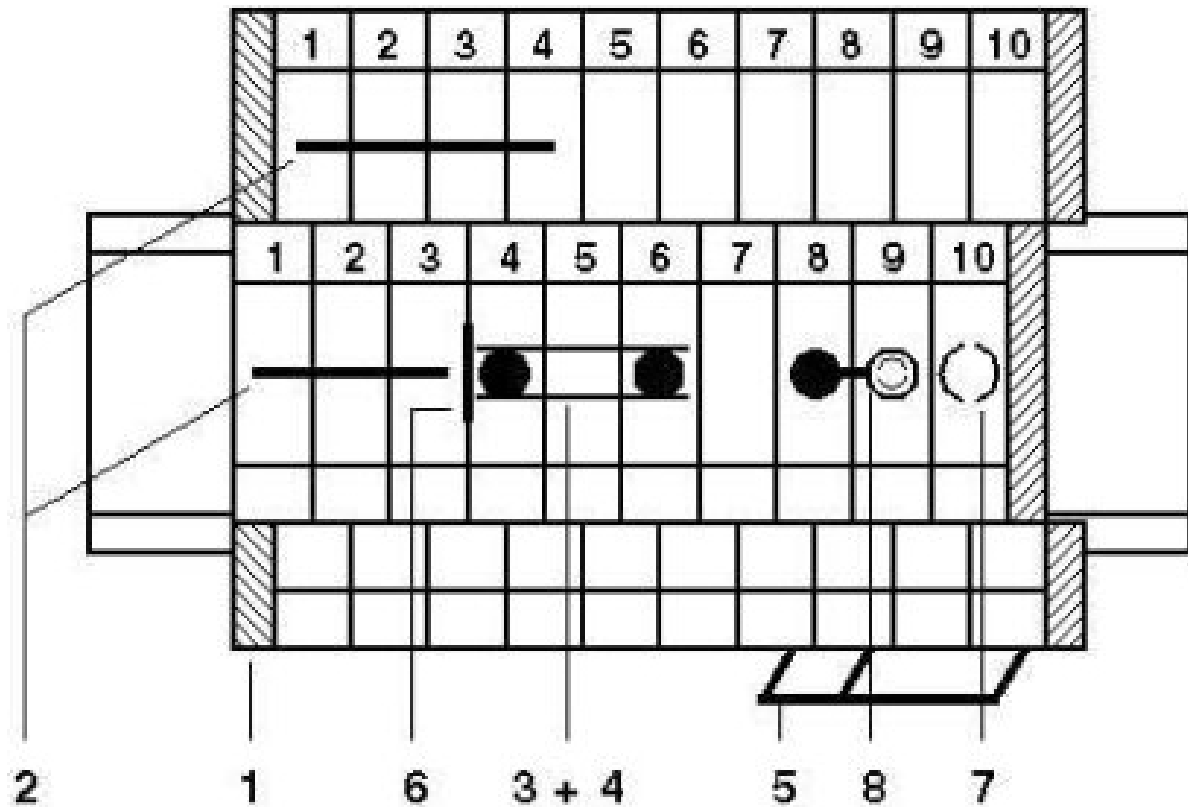


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Circuit diagram



- 1 = Cover
- 2 = Spacer plate
- 3 = Fixed bridge
- 4 = Insertion bridge
- 5 = Insulation plate
- 6 = Test sockets, for test pick-off with MPS test plug or RPS reducing plug
- 7 = Test sockets, insulated, can only be used for FBRNI

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1414064>


|  <b>CSA</b><br>Approval ID: 13631 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine  |                       |                       |                   |                             |
|  | 300 V                 | 20 A                  | 28 - 12           | -                           |

|  <b>cULus Recognized</b><br>Approval ID: E60425 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| B  |                       |                       |                   |                             |
|  | 300 V                 | 20 A                  | 30 - 12           | -                           |
| C  |                       |                       |                   |                             |
|  | 300 V                 | 20 A                  | 30 - 12           | -                           |

| <b>DNV</b><br>Approval ID: TAE00001CT |  |  |  |  |
|---------------------------------------|--|--|--|--|
|---------------------------------------|--|--|--|--|

|  <b>ATEX</b><br>Approval ID: KEMA 03ATEX2082 U |  |  |  |  |
|---|--|--|--|--|
|---|--|--|--|--|

|  <b>EAC Ex</b><br>Approval ID: KZ 7500525010101950 |  |  |  |  |
|---|--|--|--|--|
|---|--|--|--|--|

|  <b>IECEX</b><br>Approval ID: IECEX KEM 07.0018U |  |  |  |  |
|---|--|--|--|--|
|---|--|--|--|--|

|  <b>CCC</b><br>Approval ID: 2020322313000629 |  |  |  |  |
|---|--|--|--|--|
|---|--|--|--|--|

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27250102 |
| ECLASS-15.0 | 27250102 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC000897 |
|-----------|----------|

### UNSPSC

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

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## Environmental product compliance

### EU RoHS

|   |      |
|---|------|
| Fulfills EU RoHS substance requirements | Yes  |
| Exemption                               | 6(c) |

### China RoHS

|  |   |
|--|---|
| Environment friendly use period (EFUP) | EFUP-50   |
|  | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

### EU REACH SVHC

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1)                 |
| SCIP                                | 7970fac1-2a1e-40ad-b860-1332a1d893e2 |

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