

# RBO 16-FE-HC - Bolt connection terminal block



3247991

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Bolt connection terminal block, nom. voltage: 1000 V, nominal current: 520 A, number of connections: 2, number of positions: 1, connection method: Bolt connection, Rated cross section: 300 mm<sup>2</sup>, mounting type: NS 35/7,5, NS 35/15, direct screw connection, color: black/yellow

## Your advantages

- Tested for railway applications

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 3247991             |
| Packing unit                         | 5 pc                |
| Minimum order quantity               | 5 pc                |
| Sales key                            | BE44                |
| Product key                          | BE4412              |
| Catalog page                         | Page 393 (C-1-2019) |
| GTIN                                 | 4046356725187       |
| Weight per piece (including packing) | 664 g               |
| Weight per piece (excluding packing) | 664 g               |
| Customs tariff number                | 85359000            |
| Country of origin                    | IN                  |

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## Technical data

### Product properties

|                       |                                |
|-----------------------|--------------------------------|
| Product type          | Bolt connection terminal block |
| Area of application   | Railway industry               |
|                       | Machine building               |
|                       | Plant engineering              |
| Number of positions   | 1                              |
| Pitch                 | 54.8 mm                        |
| Number of connections | 2                              |
| Number of rows        | 1                              |
| Potentials            | 1                              |

### Insulation characteristics

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

### Electrical properties

|                                                 |         |
|-------------------------------------------------|---------|
| Rated surge voltage                             | 8 kV    |
| Maximum power dissipation for nominal condition | 16.22 W |

### Connection data

|                                  |                                                                                           |
|----------------------------------|-------------------------------------------------------------------------------------------|
| Number of connections per level  | 2                                                                                         |
| Nominal cross section            | 300 mm <sup>2</sup>                                                                       |
| Stripping length                 | The stripping length depends on the specification provided by the cable lug manufacturer. |
| Connection in acc. with standard | IEC 60947-7-1                                                                             |
| Nominal current                  | 520 A                                                                                     |
| Maximum load current             | 520 A (At a conductor cross section of 300 mm <sup>2</sup> )                              |
| Nominal voltage                  | 1000 V                                                                                    |
| Nominal cross section            | 300 mm <sup>2</sup>                                                                       |

### Cable lug connection DIN 46234:1980-03

|                                  |                                            |
|----------------------------------|--------------------------------------------|
| Connection in acc. with standard | DIN 46234:1980-03                          |
| Cross section                    | 25 mm <sup>2</sup> ... 300 mm <sup>2</sup> |
| Cross section range AWG          | 4 ... 600 kcmil (converted acc. to IEC)    |
| Hole diameter                    | 17 mm                                      |
| Width                            | 38 mm                                      |
| Bolt diameter                    | 16 mm                                      |
| Screw thread                     | M16                                        |
| Tightening torque                | 25 ... 35 Nm                               |
| Connection in acc. with standard | DIN 46235:1983-07                          |
| Cross section                    | 25 mm <sup>2</sup> ... 300 mm <sup>2</sup> |
| Cross section range AWG          | 4 ... 600 kcmil (converted acc. to IEC)    |
| Hole diameter                    | 17 mm                                      |

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|                   |              |
|-------------------|--------------|
| Width             | 48 mm        |
| Bolt diameter     | 16 mm        |
| Screw thread      | M16          |
| Tightening torque | 25 ... 35 Nm |

## Ex data

### Rated data (ATEX/IECEx)

|                             |                                                    |
|-----------------------------|----------------------------------------------------|
| Identification              | Ⓔ II 2 GD Ex eb IIC Gb                             |
| Operating temperature range | -60 °C ... 110 °C                                  |
| Ex-certified accessories    | 0800886 E/NS 35 N                                  |
| List of bridges             | / RBO 16-VS 2 / 3244685<br>/ RBO 16-VS 3 / 3244698 |
| Bridge data                 | 520 A / 300 mm <sup>2</sup>                        |
| Ex temperature increase     | 40 K (520 A / 300 mm <sup>2</sup> )                |
| Rated voltage               | 1100 V                                             |
| for bridging with bridge    | 1100 V                                             |
| Rated insulation voltage    | 1000 V                                             |
| output                      | (Permanent)                                        |

### Ex level General

|                      |         |
|----------------------|---------|
| Rated current        | 520 A   |
| Maximum load current | 520 A   |
| Contact resistance   | 0.02 mΩ |

### Ex connection data General

|                                                       |                                            |
|-------------------------------------------------------|--------------------------------------------|
| Torque range                                          | 25 Nm ... 35 Nm                            |
| Nominal cross section                                 | 300 mm <sup>2</sup>                        |
| Rated cross section AWG                               | 600 kcmil                                  |
| Connection capacity rigid                             | 25 mm <sup>2</sup> ... 300 mm <sup>2</sup> |
| Connection capacity AWG                               | 4 ... 600 kcmil                            |
| Connection capacity flexible                          | 25 mm <sup>2</sup> ... 300 mm <sup>2</sup> |
| Connection capacity AWG                               | 4 ... 600 kcmil                            |
| 2 conductors with same cross section, solid           | 25 mm <sup>2</sup> ... 300 mm <sup>2</sup> |
| 2 conductors with the same cross-section AWG rigid    | 4 ... 600 kcmil                            |
| 2 conductors with same cross section, stranded        | 25 mm <sup>2</sup> ... 300 mm <sup>2</sup> |
| 2 conductors with the same cross-section AWG flexible | 4 ... 600 kcmil                            |

## Dimensions

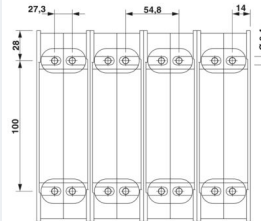
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Dimensional drawing



|                    |          |
|--------------------|----------|
| Width              | 54.8 mm  |
| Height             | 283.5 mm |
| Depth on NS 35/7,5 | 91.8 mm  |
| Depth on NS 35/15  | 99.3 mm  |
| Bolt length        | 45 mm    |
| Hole diameter      | 6.4 mm   |
| Pitch              | 54.8 mm  |

## Material specifications

|                                                                  |                   |
|------------------------------------------------------------------|-------------------|
| Color                                                            | multicolored      |
|                                                                  | black (RAL 9005)  |
|                                                                  | yellow (RAL 1018) |
| Flammability rating according to UL 94                           | V0                |
| Insulating material group                                        | I                 |
| Insulating material                                              | PA                |
| Static insulating material application in cold                   | -60 °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       |
| 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 300 mm <sup>2</sup> | 36 kA                               |
| Result                                           | Test passed                         |

### Power-frequency withstand voltage

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|                       |             |
|-----------------------|-------------|
| Test voltage setpoint | 2.2 kV      |
| Result                | Test passed |

## Mechanical properties

### Mechanical data

|                 |    |
|-----------------|----|
| Open side panel | No |
|-----------------|----|

## Mechanical tests

### Mechanical strength

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

### Attachment on the carrier

|                         |             |
|-------------------------|-------------|
| DIN rail/fixing support | NS 35       |
| Test force setpoint     | 20 N        |
| 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):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              | $1.857 \text{ (m/s}^2\text{)}^2\text{/Hz}$          |
| 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, not exceeding 24 h, -60 °C to +70 °C)                                                    |

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|                                          |                 |
|------------------------------------------|-----------------|
| Ambient temperature (assembly)           | -5 °C ... 70 °C |
| Ambient temperature (actuation)          | -5 °C ... 70 °C |
| 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 35/7,5               |
|               | NS 35/15                |
|               | direct screw connection |

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## Drawings

### Circuit diagram

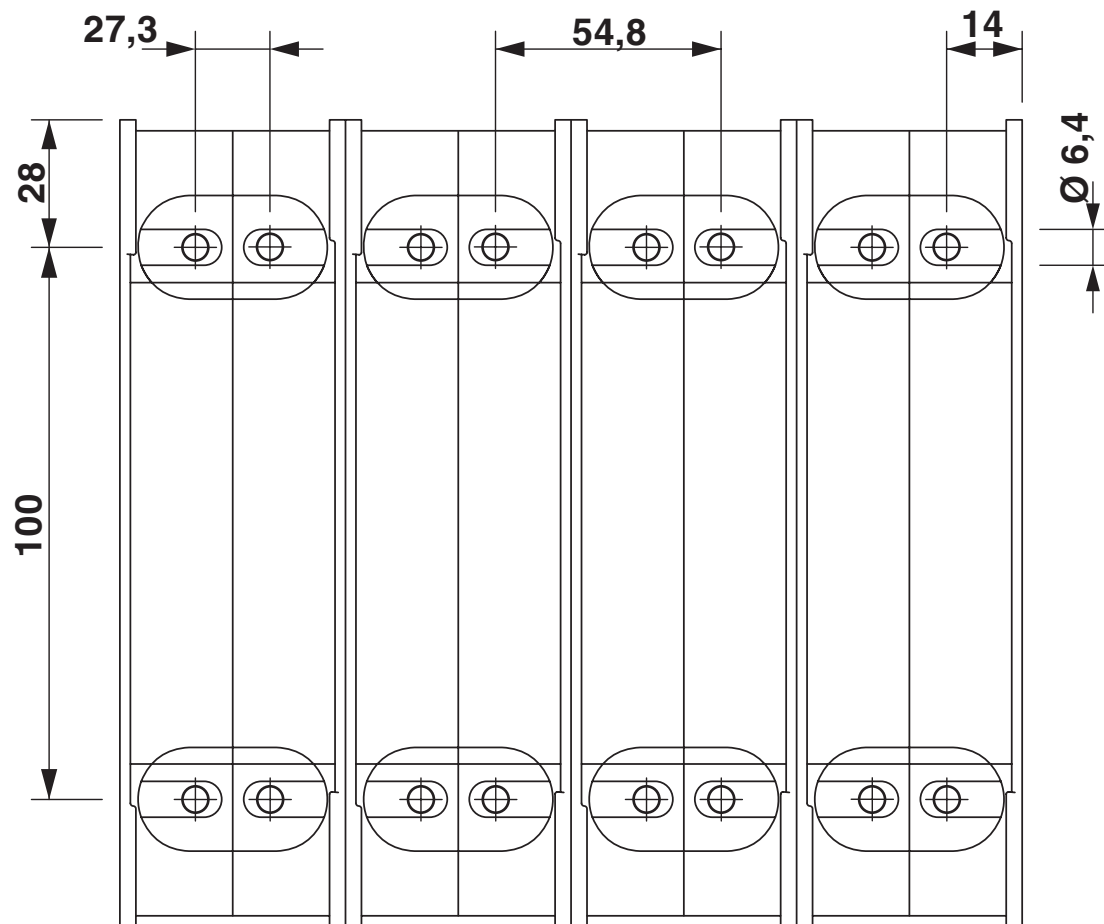


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Dimensional drawing



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/3247991>

|  <b>CSA</b><br>Approval ID: 13631 |                       |                       |                   |                             |
|--------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                    | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group C                                                                                                        | 1000 V                | 540 A                 | 4 - 1000          | -                           |

|  <b>UL Recognized</b><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                 | 540 A                 | 4 - 1000          | -                           |
| Use group C                                                                                                                   | 600 V                 | 540 A                 | 4 - 1000          | -                           |
| Use group E                                                                                                                   | 1000 V                | 540 A                 | 4 - 1000          | -                           |

|  <b>EAC</b><br>Approval ID: RU C-DE.BL08.B.00540 |  |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
|-------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|

| <b>DNV</b><br>Approval ID: TAE00004G1 |  |  |  |  |
|---------------------------------------|--|--|--|--|
|---------------------------------------|--|--|--|--|

|  <b>IECEx</b><br>Approval ID: IECExSEV13.0003U |                       |                       |                   |                             |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|                                                                                                                                   | 1100 V                | 520 A                 | -                 | 25 - 300                    |

|  <b>ATEX</b><br>Approval ID: SEV13ATEX0132U |                       |                       |                   |                             |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|                                                                                                                                | 1100 V                | 520 A                 | -                 | 25 - 300                    |

|  <b>CCC</b><br>Approval ID: 2020322313000627 |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
|---------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|

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**UKCA-EX**

Approval ID: CML 22UKEX1230U



**EAC Ex**

Approval ID: KZ 7500525010101950

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## Classifications

### ECLASS

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

### ETIM

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

### UNSPSC

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

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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%               |

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)