

# UKH 70-FE - High-current terminal block



3247053

<https://www.phoenixcontact.com/sg/products/3247053>

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High-current terminal block, nom. voltage: 1000 V, nominal current: 192 A, number of connections: 2, number of positions: 1, connection method: Screw connection, Rated cross section: 70 mm<sup>2</sup>, cross section: 16 mm<sup>2</sup> - 70 mm<sup>2</sup>, mounting type: NS 35/7,5, NS 35/15, NS 35/15-2,3, NS 32, color: black/yellow

## Your advantages

- Reliable cable connection is ensured by three-point centering of the conductor in the prismatic sleeve base
- Screw locking by means of spring-loaded elements in the clamping part
- Low contact resistance of the contact surface due to ribbing
- Tested for railway applications

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 3247053                        |
| Packing unit                         | 10 pc                          |
| Minimum order quantity               | 10 pc                          |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | *****                          |
| Product key                          | BE1311                         |
| GTIN                                 | 4046356707190                  |
| Weight per piece (including packing) | 157.8 g                        |
| Weight per piece (excluding packing) | 146.44 g                       |
| Customs tariff number                | 85369010                       |
| Country of origin                    | CN                             |

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## Technical data

### Product properties

|                       |                             |
|-----------------------|-----------------------------|
| Product type          | High current terminal block |
| Area of application   | Railway industry            |
|                       | Machine building            |
|                       | Plant engineering           |
| Number of positions   | 1                           |
| 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 | 6.27 W |

### Connection data

|                                 |                    |
|---------------------------------|--------------------|
| Number of connections per level | 2                  |
| Nominal cross section           | 70 mm <sup>2</sup> |

### Level 1 above 1 below 1

|                                                                                     |                                                                                                                              |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Screw thread                                                                        | M8                                                                                                                           |
| Tightening torque                                                                   | 8 ... 10 Nm                                                                                                                  |
| Stripping length                                                                    | 24 mm                                                                                                                        |
| Internal cylindrical gage                                                           | A11                                                                                                                          |
| Connection in acc. with standard                                                    | IEC 60947-7-1                                                                                                                |
| Conductor cross section rigid                                                       | 16 mm <sup>2</sup> ... 70 mm <sup>2</sup>                                                                                    |
| Cross section AWG                                                                   | 4 ... 2/0 (converted acc. to IEC)                                                                                            |
| Conductor cross section flexible                                                    | 25 mm <sup>2</sup> ... 70 mm <sup>2</sup>                                                                                    |
| Conductor cross section, flexible [AWG]                                             | 2 ... 2/0 (converted acc. to IEC)                                                                                            |
| Conductor cross-section flexible (ferrule without plastic sleeve)                   | 16 mm <sup>2</sup> ... 70 mm <sup>2</sup>                                                                                    |
| Flexible conductor cross section (ferrule with plastic sleeve)                      | 16 mm <sup>2</sup> ... 70 mm <sup>2</sup>                                                                                    |
| 2 conductors with same cross section, solid                                         | 16 mm <sup>2</sup> ... 25 mm <sup>2</sup>                                                                                    |
| 2 conductors with same cross section, flexible                                      | 16 mm <sup>2</sup> ... 25 mm <sup>2</sup>                                                                                    |
| 2 conductors with same cross section, flexible, with ferrule without plastic sleeve | 16 mm <sup>2</sup> ... 25 mm <sup>2</sup>                                                                                    |
| Nominal current                                                                     | 192 A                                                                                                                        |
| Maximum load current                                                                | 192 A (with 70 mm <sup>2</sup> conductor cross section)                                                                      |
| Nominal voltage                                                                     | 1000 V                                                                                                                       |
| Note                                                                                | Note: Product releases, connection cross sections and notes on connecting aluminum cables can be found in the download area. |

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|                       |                    |
|-----------------------|--------------------|
| Nominal cross section | 70 mm <sup>2</sup> |
|-----------------------|--------------------|

## Ex data

### Rated data (ATEX/IECEx)

|                             |                                    |
|-----------------------------|------------------------------------|
| Identification              | Ex II 2 GD Ex eb IIC Gb            |
| Operating temperature range | -60 °C ... 110 °C                  |
| Ex-certified accessories    | 1201934 VDE-ISS 6                  |
|                             | 1201659 E/AL-NS 32                 |
|                             | 1201662 E/AL-NS 35                 |
| List of bridges             | / FBI 2-20 N EX / 3213210          |
|                             | / FBI 3-20 N EX / 3213211          |
| Bridge data                 | 180 A (70 mm <sup>2</sup> )        |
| Ex temperature increase     | 40 K (180 A / 70 mm <sup>2</sup> ) |
| Rated voltage               | 880 V (NS 35)                      |
| Rated insulation voltage    | 800 V (NS 35)                      |
|                             | 630 V (NS 32)                      |
| output                      | (Permanent)                        |

### Ex level General

|                      |         |
|----------------------|---------|
| Rated current        | 180 A   |
| Maximum load current | 180 A   |
| Contact resistance   | 0.08 mΩ |

### Ex connection data General

|                                                       |                                           |
|-------------------------------------------------------|-------------------------------------------|
| Torque range                                          | 8 Nm ... 10 Nm                            |
| Nominal cross section                                 | 70 mm <sup>2</sup>                        |
| Rated cross section AWG                               | 2/0                                       |
| Connection capacity rigid                             | 16 mm <sup>2</sup> ... 95 mm <sup>2</sup> |
| Connection capacity AWG                               | 4 ... 3/0                                 |
| Connection capacity flexible                          | 25 mm <sup>2</sup> ... 70 mm <sup>2</sup> |
| Connection capacity AWG                               | 3 ... 2/0                                 |
| 2 conductors with same cross section, solid           | 16 mm <sup>2</sup> ... 25 mm <sup>2</sup> |
| 2 conductors with the same cross-section AWG rigid    | 4 ... 3                                   |
| 2 conductors with same cross section, stranded        | 16 mm <sup>2</sup> ... 25 mm <sup>2</sup> |
| 2 conductors with the same cross-section AWG flexible | 4 ... 3                                   |

## Dimensions

|                   |         |
|-------------------|---------|
| Width             | 20.3 mm |
| Height            | 70.5 mm |
| Depth on NS 32    | 85 mm   |
| Depth on NS 35/15 | 87.5 mm |

## Material specifications

|       |                  |
|-------|------------------|
| Color | multicolored     |
|       | black (RAL 9005) |

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|                                                                         |                   |
|-------------------------------------------------------------------------|-------------------|
|                                                                         | 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            |
| 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 70 mm <sup>2</sup> | 8.4 kA                              |
| Result                                          | Test passed                         |

### Power-frequency withstand voltage

|                       |             |
|-----------------------|-------------|
| 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 32/NS 35 |
| Test force setpoint     | 10 N        |
| Result                  | Test passed |

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## Test for conductor damage and slackening

|                                |                             |
|--------------------------------|-----------------------------|
| Rotation speed                 | 10 (+/- 2) rpm              |
| Revolutions                    | 135                         |
| Conductor cross section/weight | 16 mm <sup>2</sup> / 2.9 kg |
|                                | 70 mm <sup>2</sup> /10.4 kg |
|                                | 95 mm <sup>2</sup> /14 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):2022-06            |
| 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

|                                |                                     |
|--------------------------------|-------------------------------------|
| Specification                  | DIN EN 50155 (VDE 0115-200):2022-06 |
| 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)                                                    |
| 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 |
|----------------------------------|---------------|

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## Mounting

|               |              |
|---------------|--------------|
| Mounting type | NS 35/7,5    |
|               | NS 35/15     |
|               | NS 35/15-2,3 |
|               | NS 32        |

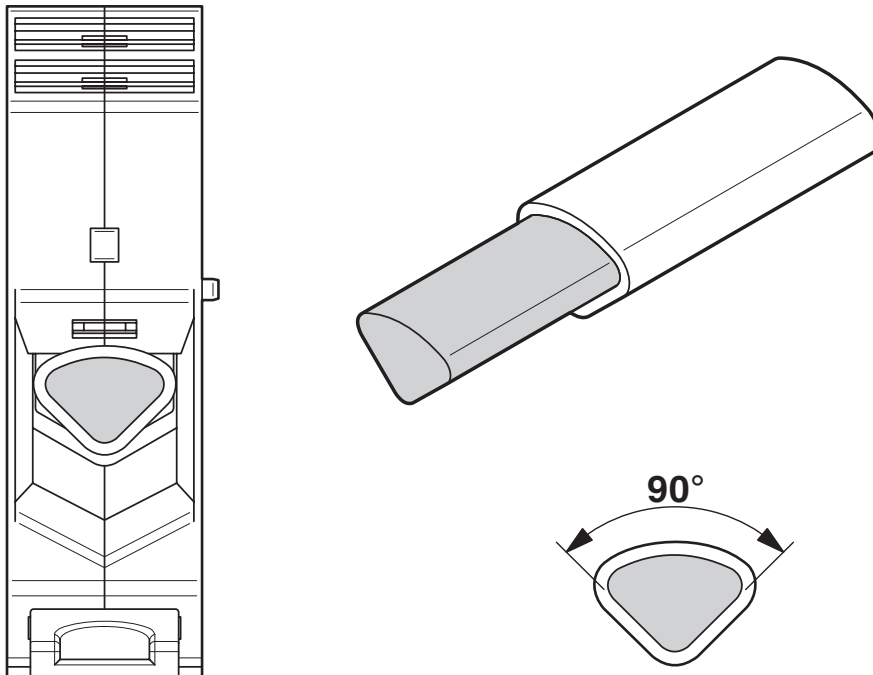
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## Drawings

Schematic diagram



Connecting aluminum cables. Further notes can be found in the download area

Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/sg/products/3247053>

|  <b>cULus Recognized</b><br>Approval ID: E60425 |                       |                       |                   |                             |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group C                                                                                                                      | 1000 V                | 192 A                 | 6 - 3/0           | -                           |
| Use group E                                                                                                                      | 1000 V                | 192 A                 | 6 - 3/0           | -                           |

|                                                                                                                         |  |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
|  <b>LR</b><br>Approval ID: LR2420186TA |  |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------|--|--|--|--|

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

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

|  <b>IECEx</b><br>Approval ID: IECEx SEV12.0008U |                       |                       |                   |                             |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                    | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Mounting on NS 32                                                                                                                  | 690 V                 | 180 A                 | -                 | 25 - 70                     |
| Mounting on NS 35                                                                                                                  | 880 V                 | 180 A                 | -                 | 25 - 70                     |

|  <b>ATEX</b><br>Approval ID: SEV12ATEX0168U |                       |                       |                   |                             |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Mounting on NS 32                                                                                                              | 690 V                 | 180 A                 | -                 | 25 - 70                     |
| Mounting on NS 35                                                                                                              | 880 V                 | 180 A                 | -                 | 25 - 70                     |

|                                                                                                                                 |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
|  <b>CCC</b><br>Approval ID: 2020322313000623 |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|

| <b>UL Comp Hazloc CA US</b><br>Approval ID: UL UL CA L 192998 |                       |                       |                   |                             |
|---------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                               | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|                                                               | 880 V                 | 192 A                 | 6 - 3/0           | -                           |



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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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