# STTB 2,5-PV - Double-level terminal block

3031539

https://www.phoenixcontact.com/us/products/3031539

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Double-level terminal block, with equipotential bonder, nom. voltage: 500 V, nominal current: 22 A, connection method: Spring-cage connection, 1st and 2nd level, Rated cross section: 2.5 mm$^2$, cross section: 0.08 mm$^2$ - 4 mm$^2$, mounting type: NS 35/7,5, NS 35/15, color: gray

## Your advantages

- Simple wiring of very small, flexible conductors
- Enables one-handed wiring
- No restriction on cross-sections when using conductors with ferrules
- Reliable vibration resistance thanks to spring-loaded contact elements
- High space savings thanks to the compact integration of two separate circuits in a single terminal block
- Full flexibility thanks to the standardized CLIPLINE complete bridging, marking, and testing accessories

## Commercial data

| | |
|---|---|
| Item number | 3031539 |
| Packing unit | 50 pc |
| Minimum order quantity | 50 pc |
| Sales key | BE02 |
| Product key | BE2114 |
| GTIN | 4017918176297 |
| Weight per piece (including packing) | 10.866 g |
| Weight per piece (excluding packing) | 10.21 g |
| Customs tariff number | 85369010 |
| Country of origin | DE |

## Technical data

### Product properties

| | |
|---|---|
| Product type | Multi-level terminal block |
| Product family | ST |
| Area of application | Railway industry |
| | Machine building |
| | Plant engineering |
| | Process industry |
| Number of connections | 4 |
| Number of rows | 2 |
| Potentials | 1 |

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 mm² |

1st and 2nd level

| | |
|---|---|
| Connection method | Spring-cage connection |
| Stripping length | 8 mm ... 10 mm |
| Internal cylindrical gage | A3 |
| Connection in acc. with standard | IEC 60947-7-1 |
| Conductor cross-section rigid | 0.08 mm² ... 4 mm² |
| Cross section AWG | 28 ... 12 (converted acc. to IEC) |
| Conductor cross-section flexible | 0.08 mm² ... 2.5 mm² |
| Conductor cross-section, flexible [AWG] | 28 ... 14 (converted acc. to IEC) |
| Conductor cross-section flexible (ferrule without plastic sleeve) | 0.14 mm² ... 2.5 mm² |
| Flexible conductor cross-section (ferrule with plastic sleeve) | 0.14 mm² ... 2.5 mm² |
| 2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve | 0.5 mm² |
| Nominal cross section | 2.5 mm² |
| Nominal current | 22 A (with 4 mm² conductor cross-section) |
| Maximum load current | 26 A (in case of a 4 mm² conductor cross-section, the maximum load current must not be exceeded by the total current of all connected conductors.) |
| Nominal voltage | 500 V |

## Ex data

Rated data (ATEX/IECEx)

| | |
|---|---|
| Identification | Ⓔx II 2 GD Ex eb IIC Gb |
| Operating temperature range | -60 °C ... 85 °C |
| Ex-certified accessories | 3030459 D-STTB 2,5 |
| | 3030747 ATP-STTB 4 |
| | 1204517 SZF 1-0,6X3,5 |
| | 3022276 CLIPFIX 35-5 |
| | 3022218 CLIPFIX 35 |
| List of bridges | Plug-in bridge / FBS 2-5 / 3030161 |
| | Plug-in bridge / FBS 3-5 / 3030174 |
| | Plug-in bridge / FBS 4-5 / 3030187 |
| | Plug-in bridge / FBS 5-5 / 3030190 |
| | Plug-in bridge / FBS 10-5 / 3030213 |
| | Plug-in bridge / FBS 20-5 / 3030226 |
| Bridge data | 17 A / 2.5 mm² |
| Ex temperature increase | 40 K (21.9 A / 2.5 mm²) |
| for bridging with bridge | 440 V |
| - At bridging between non-adjacent terminal blocks | 352 V |
| - At bridging between non-adjacent terminal blocks via PE terminal block | 352 V |
| - At cut-to-length bridging with cover | 220 V |
| - At cut-to-length bridging with partition plate | 220 V |
| Rated insulation voltage | 400 V |
| output | (Permanent) |

Ex level General

| | |
|---|---|
| Rated voltage | 440 V |
| Rated current | 19.5 A |
| Maximum load current | 23.5 A |

Ex connection data General

| | |
|---|---|
| Nominal cross section | 2.5 mm² |
| Rated cross section AWG | 14 |
| Connection capacity rigid | 0.08 mm² ... 4 mm² |
| Connection capacity AWG | 28 ... 12 |
| Connection capacity flexible | 0.08 mm² ... 2.5 mm² |
| Connection capacity AWG | 28 ... 14 |
| output | (Permanent) |

Ex level Level 1

| | |
|---|---|
| Contact resistance | 1.04 mΩ |
| output | (Permanent) |

Ex level Level 2

| | |
|---|---|
| Contact resistance | 0.83 mΩ |
| output | (Permanent) |

Ex level PV connection

| | |
|---|---|
| Contact resistance | 1.04 mΩ |

## Dimensions

| | |
|---|---|
| Width | 5.2 mm |
| End cover width | 2.2 mm |
| Height | 67.5 mm |
| Depth on NS 35/7,5 | 47.5 mm |
| Depth on NS 35/15 | 55 mm |

## Material specifications

| | |
|---|---|
| Color | gray (RAL 7042) |
| 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)) | 125 °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) | 27,5 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 | 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 mm² | 0.3 kA |
| Short-time withstand current 4 mm² | 0.48 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

Mechanical strength

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

Attachment on the carrier

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

Test for conductor damage and slackening

| | |
|---|---|
| Rotation speed | 10 rpm |
| Revolutions | 135 |
| Conductor cross-section/weight | 0.08 mm² / 0.1 kg |
| | 2.5 mm² / 0.7 kg |
| | 4 mm² / 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 | Long life test category 2, bogie-mounted |
| Frequency | $f_1$ = 5 Hz to $f_2$ = 250 Hz |
| ASD level | 6.12 (m/s²)²/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):2008-03 |

| | |
|---|---|
| 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) | -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

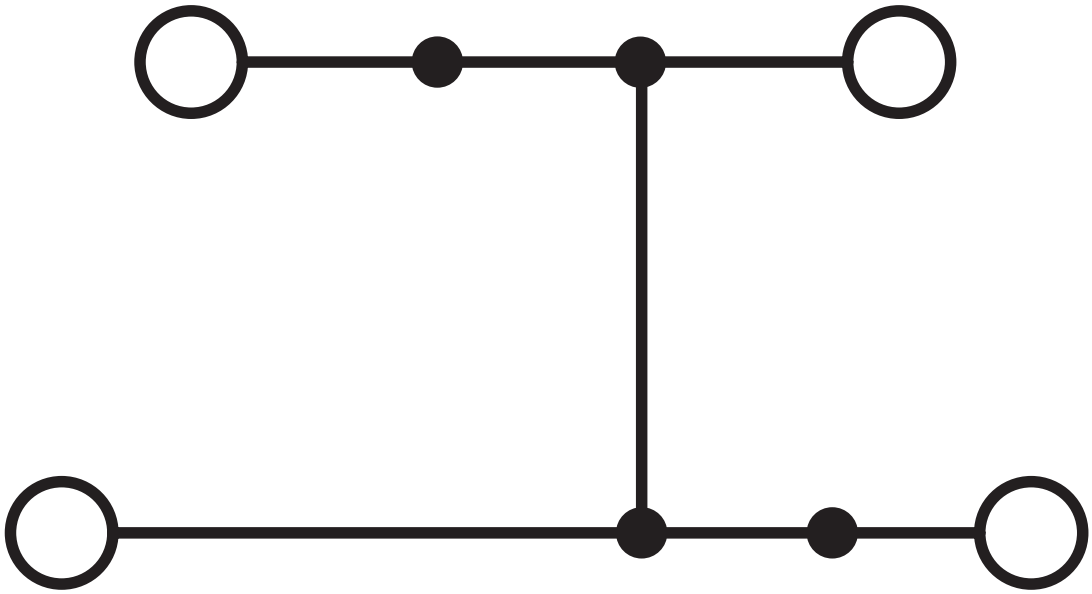
| | |
|---|---|
| Connection in acc. with standard | IEC 60947-7-1 |

## Mounting

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

## Drawings

Circuit diagram



## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/3031539

**CSA**
Approval ID: 13631

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| B | | | | |
| | 300 V | 20 A | 28 - 12 | - |
| C | | | | |
| | 300 V | 20 A | 28 - 12 | - |

**IECEE CB Scheme**
Approval ID: DE1-66179

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| keine | | | | |
| | 500 V | 22 A | - | 0.2 - 2.5 |

**VDE Zeichengenehmigung**
Approval ID: 40009033

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| keine | | | | |
| | 500 V | 22 A | - | 0.2 - 2.5 |

**cULus Recognized**
Approval ID: E60425

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| B | | | | |
| | 300 V | 20 A | 28 - 12 | - |
| C | | | | |
| | 300 V | 20 A | 28 - 12 | - |
| D | | | | |
| | 600 V | 5 A | 28 - 12 | - |

**ATEX**
Approval ID: KEMA00ATEX2052U

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| keine | | | | |
| Only flexible conductors | 440 V | 19.5 A | - | 0.08 - 2.5 |
| Only rigid conductors | 440 V | 23.5 A | - | 0.08 - 4 |

**IECEx**
Approval ID: IECEx KEM 06.0051U

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| keine | | | | |
| Only flexible conductors | 440 V | 19.5 A | - | 0.08 - 2.5 |
| Only rigid conductors | 440 V | 23.5 A | - | 0.08 - 4 |

**CCC**
Approval ID: 2020322313000621

**UKCA-EX**
Approval ID: DEKRA 21UKEX0300U

**EAC Ex**
Approval ID: KZ 7500525010101950

## Classifications

### ECLASS

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

### ETIM

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

### UNSPSC

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

## 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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