

# SP 4/ 1-L - Plug

3042751

<https://www.phoenixcontact.com/us/products/3042751>



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Plug, nom. voltage: 800 V, nominal current: 32 A, number of positions: 1, connection method: Spring-cage connection, Rated cross section: 4 mm<sup>2</sup>, cross section: 0.08 mm<sup>2</sup>- 6 mm<sup>2</sup>, color: gray

## Product description

Connector element left, left housing without engagement pin, right opened without cover

## Your advantages

- Cable housing can be snapped on to the plugs, see figure below
- The plug with spring-cage connection is assembled directly on site by snapping together single-position plug elements
- The ST-COMBI plugs for self-assembly provide solutions that users can implement themselves
- Tested for railway applications

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 3042751       |
| Packing unit                         | 50 pc         |
| Minimum order quantity               | 50 pc         |
| Sales key                            | BE02          |
| Product key                          | BE2144        |
| GTIN                                 | 4017918956059 |
| Weight per piece (including packing) | 4.3 g         |
| Weight per piece (excluding packing) | 3.8 g         |
| Customs tariff number                | 85366990      |
| Country of origin                    | PL            |

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## Technical data

### Notes

|                    |   |
|--------------------|---|
| Notes on operation | COMBI connectors are connectors without switching power in accordance with IEC 61984 and can be connected or disconnected without load or voltage when used as intended |
|--------------------|---|

### General

|      |   |
|------|---|
| Note | With a free-hanging connection, an insulating foil has to be placed between the plug connection and electrically conductive surfaces. |
|------|---|

### Product properties

|                     |               |
|---------------------|---------------|
| Product type        | Terminal plug |
| Number of positions | 1             |
| Pitch               | 6.2 mm        |

### Insulation characteristics

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

### Electrical properties

|                     |      |
|---------------------|------|
| Rated surge voltage | 8 kV |
|---------------------|------|

### Connection data

|   |   |
|---|---|
| Nominal cross section   | 4 mm <sup>2</sup>                                     |
| Connection method   | Spring-cage connection                                |
| Stripping length  | 8 mm ... 10 mm  |
| Internal cylindrical gage   | A4  |
| Connection in acc. with standard  | IEC 61984   |
| Conductor cross-section rigid   | 0.08 mm <sup>2</sup> ... 6 mm <sup>2</sup>            |
| Cross section AWG   | 28 ... 10 (converted acc. to IEC)                     |
| Conductor cross-section flexible  | 0.08 mm <sup>2</sup> ... 4 mm <sup>2</sup>            |
| Conductor cross-section, flexible [AWG]   | 28 ... 12 (converted acc. to IEC)                     |
| Conductor cross-section flexible (ferrule without plastic sleeve)                         | 0.14 mm <sup>2</sup> ... 4 mm <sup>2</sup>            |
| Flexible conductor cross-section (ferrule with plastic sleeve)                            | 0.14 mm <sup>2</sup> ... 4 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   | 4 mm <sup>2</sup>                                     |
| Nominal current   | 32 A  |
| Maximum load current  | 32 A (with 6 mm <sup>2</sup> conductor cross-section) |
| Nominal voltage   | 800 V   |

### Dimensions

|        |        |
|--------|--------|
| Width  | 6.2 mm |
| Height | 21 mm  |

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|        |         |
|--------|---------|
| Depth  | 41.5 mm |
| Length | 21 mm   |
| Pitch  | 6.2 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)) | 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

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

### Attachment on the carrier

|        |             |
|--------|-------------|
| 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 1, class B, body mounted |

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|                        |  |
|------------------------|--|
| Frequency              | $f_1 = 5 \text{ Hz}$ to $f_2 = 150 \text{ Hz}$ |
| ASD level              | $0.964 \text{ (m/s}^2\text{)}^2\text{/Hz}$     |
| Acceleration           | 0.58g  |
| Test duration per axis | 5 h  |
| Test directions        | X-, Y- and Z-axis                              |
| Result                 | Test passed                                    |

## Shocks

|                                |                                   |
|--------------------------------|-----------------------------------|
| 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 (max. operating temperature see derating curve)                    |
| 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 61984 |
|----------------------------------|-----------|

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## Drawings

Schematic diagram



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Derating curve for spring-cage terminals ST 4/1P.. and ST 4/2P.. with all plug versions SP 4/... . The derating curves are determined by multiplying the values of the base curves by the factor 0.8.

Diagram



Derating curve for the spring-cage terminal with all plug versions SP 4/... .

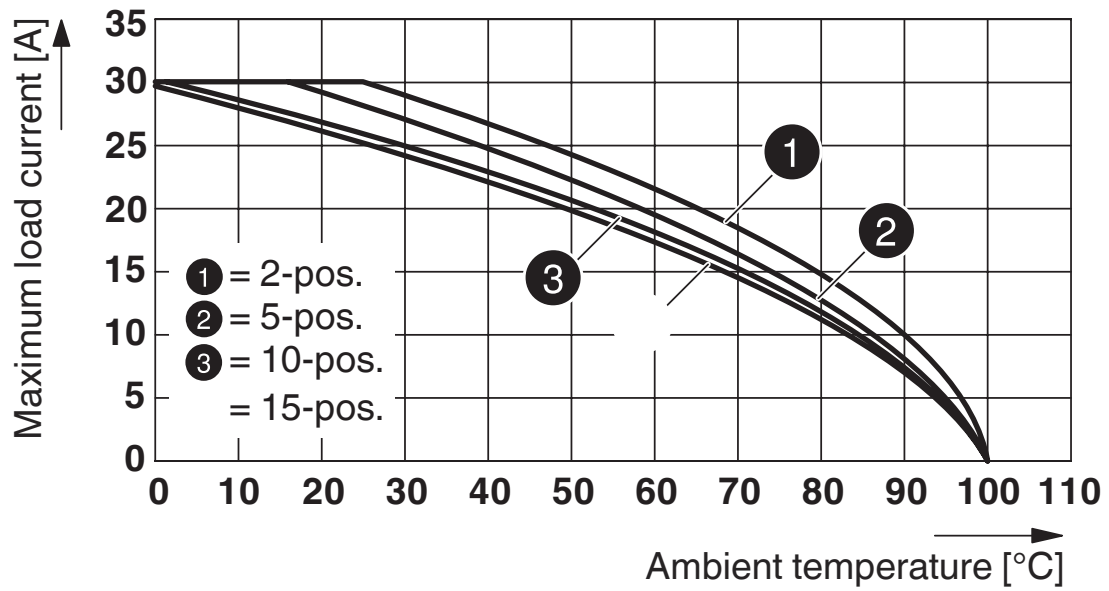
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Diagram



Derating curve for ST 4/ 1P and for all SP... connector versions .

Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/3042751>

|  <b>CSA</b><br>Approval ID: 13631 |                       |                       |                   |                      |
|--|-----------------------|-----------------------|-------------------|----------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
| B  | 600 V                 | 30 A                  | 24 - 12           | -                    |
| C  | 600 V                 | 30 A                  | 24 - 12           | -                    |

|  <b>IECEE CB Scheme</b><br>Approval ID: DE1-62736/B1/B2 |  |  |  |  |
|--|--|--|--|--|
|--|--|--|--|--|

|  <b>cULus Recognized</b><br>Approval ID: E60425 |                       |                       |                   |                      |
|--|-----------------------|-----------------------|-------------------|----------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
| B  | 600 V                 | 30 A                  | 28 - 10           | -                    |
| C  | 600 V                 | 30 A                  | 28 - 10           | -                    |

|  <b>VDE Zeichengenehmigung</b><br>Approval ID: 40019518 |                       |                       |                   |                      |
|--|-----------------------|-----------------------|-------------------|----------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
| keine  |                       |                       |                   |                      |
| Only flexible conductors   | 800 V                 | -                     | -                 | 0.2 - 4              |
| Only rigid conductors  | 800 V                 | -                     | -                 | 0.2 - 6              |

|  <b>EAC</b><br>Approval ID: KZ7500651131219505 |  |  |  |  |
|---|--|--|--|--|
|---|--|--|--|--|

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27250306 |
| ECLASS-15.0 | 27250306 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002021 |
|-----------|----------|

### 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% |
|-------------------------------------|----------------------------|

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 0.029 kg CO2e |
|---------|---------------|

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