

# SP 4/ 1-M - Plug

3042780

<https://www.phoenixcontact.com/it/products/3042780>



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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 center, left housing with 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                          | 3042780             |
| Packing unit                         | 50 pc               |
| Minimum order quantity               | 1 pc                |
| Sales key                            | BE2                 |
| Product key                          | BE2144              |
| Catalog page                         | Page 345 (C-1-2019) |
| GTIN                                 | 4017918956080       |
| Weight per piece (including packing) | 4.5 g               |
| Weight per piece (excluding packing) | 3.9 g               |
| Customs tariff number                | 85366990            |
| Country of origin                    | PL                  |

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## Technical data

### 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>                                     |
| 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 current                                                                           | 32 A                                                  |
| Maximum load current                                                                      | 32 A (with 6 mm <sup>2</sup> conductor cross section) |
| Nominal voltage                                                                           | 800 V                                                 |
| Nominal cross section                                                                     | 4 mm <sup>2</sup>                                     |

### Dimensions

|        |         |
|--------|---------|
| Width  | 6.2 mm  |
| Height | 21 mm   |
| Depth  | 41.5 mm |
| Length | 21 mm   |
| Pitch  | 6.2 mm  |

### Material specifications

|                                        |      |
|----------------------------------------|------|
| Color                                  | gray |
| Flammability rating according to UL 94 | V0   |
| Insulating material group              | I    |
| Insulating material                    | PA   |

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|                                                                         |             |
|-------------------------------------------------------------------------|-------------|
| 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               | Service life test category 1, class B, body mounted |
| Frequency              | $f_1 = 5 \text{ Hz}$ to $f_2 = 150 \text{ Hz}$      |
| ASD level              | 0.964 (m/s <sup>2</sup> ) <sup>2</sup> /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 |
|-------------|-----------|

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|                                |                                   |
|--------------------------------|-----------------------------------|
| 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, no longer than 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 |
|----------------------------------|-----------|

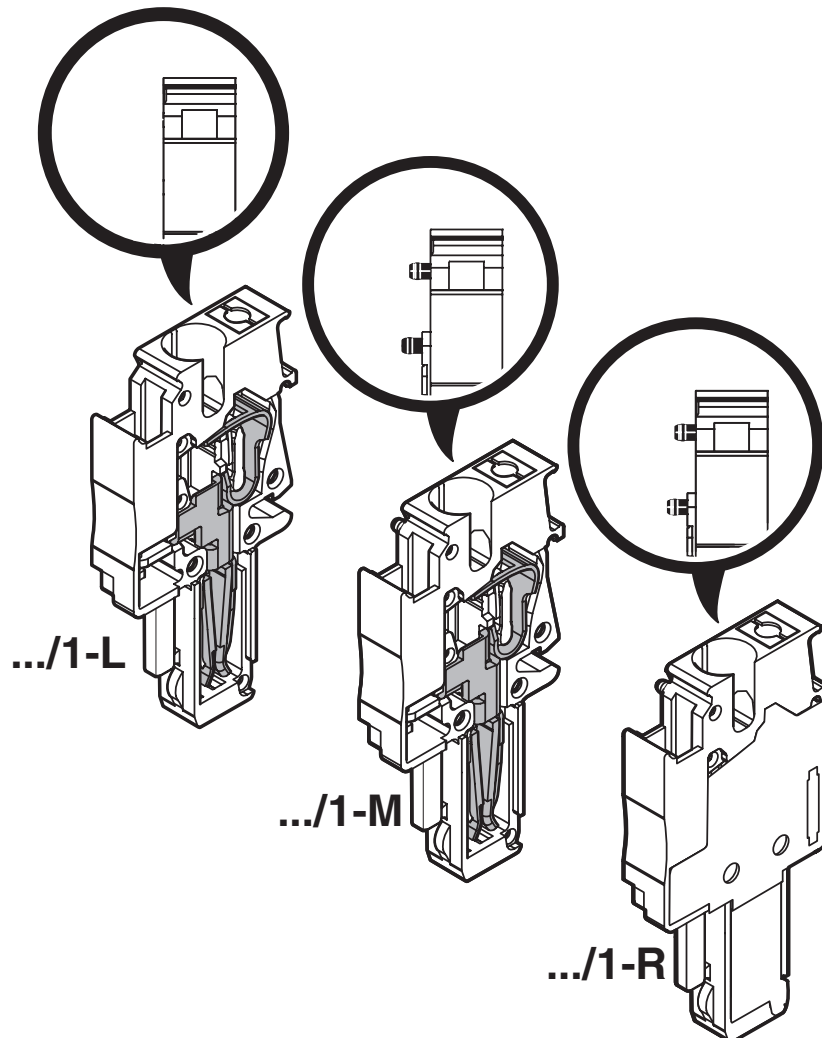
# SP 4/ 1-M - Plug

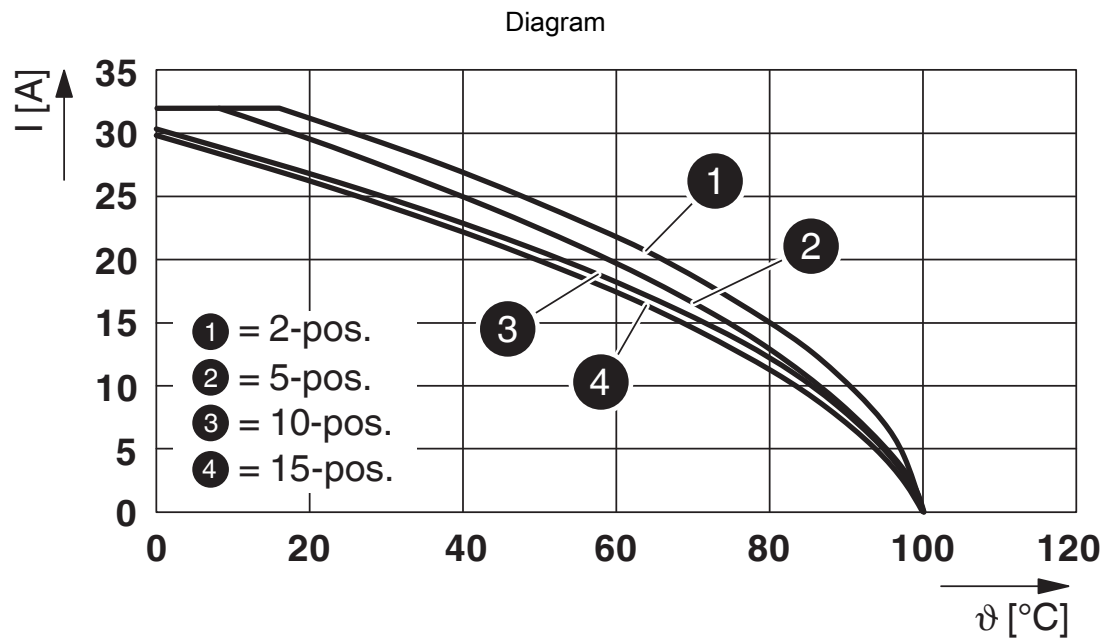
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## Drawings

Schematic diagram

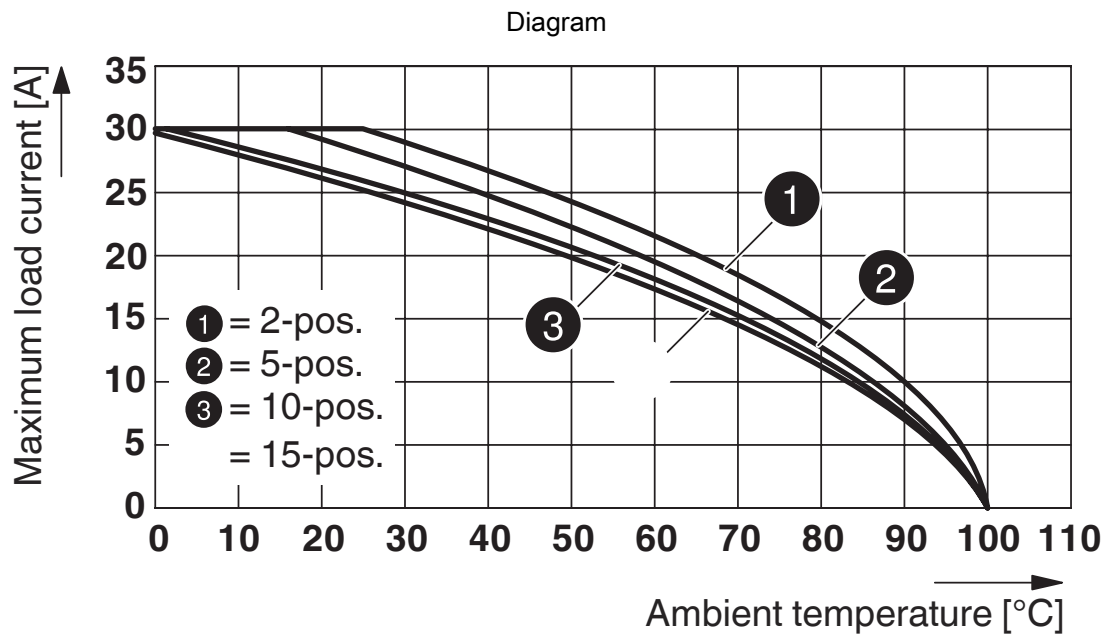




Derating curve for spring-cage terminals ST 4/1P.. and ST 4/2P.. with all plug versions SP 4/... . The derating curves are determined by multiplying the values of the base curves by the factor 0.8.

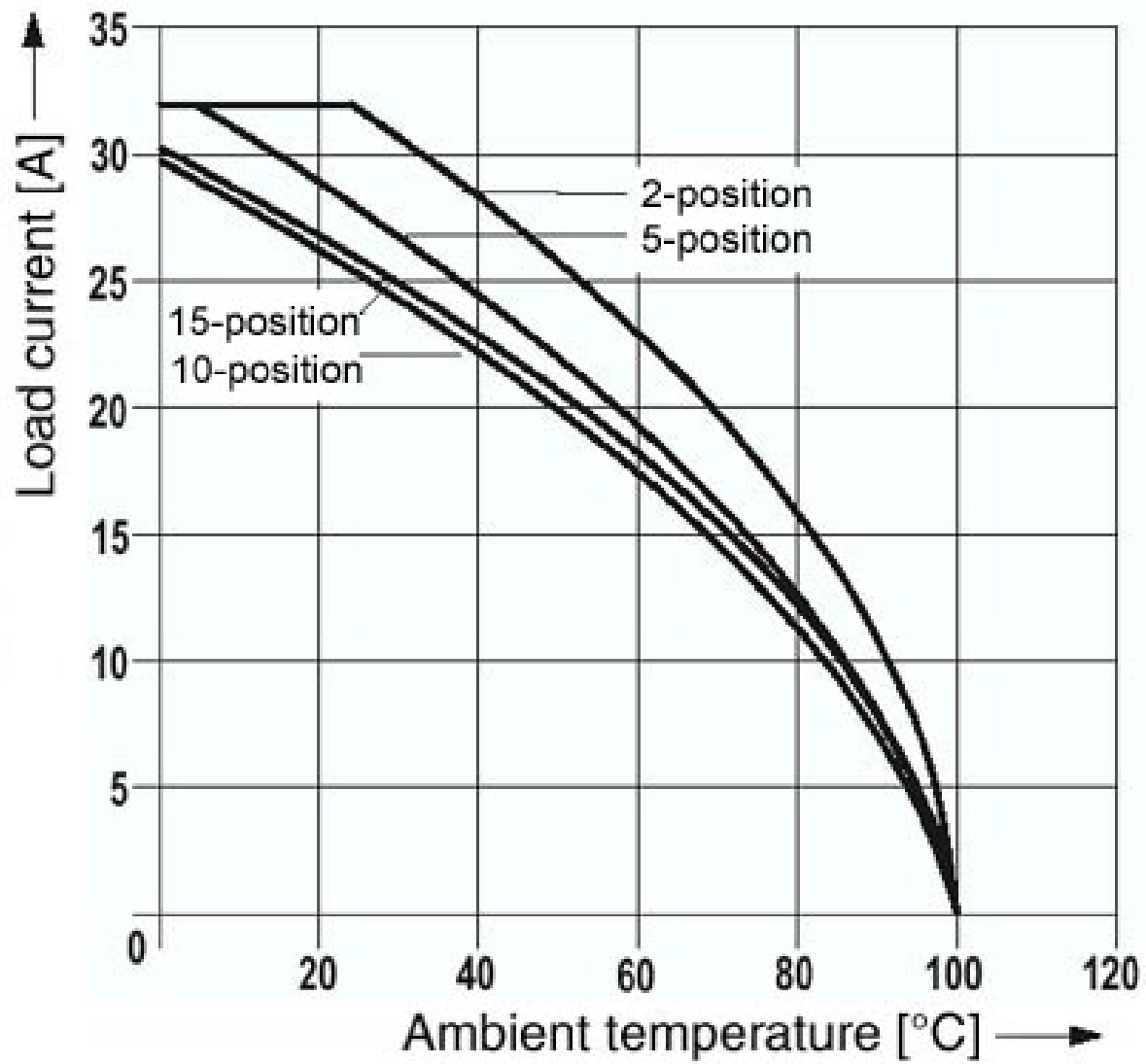
Circuit diagram





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

Diagram



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



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/it/products/3042780>

| CSA<br>Approval ID: 13631 |                       |                       |                   |                             |
|---------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                           | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| Use group B               |                       |                       |                   |                             |
|                           | 600 V                 | 30 A                  | 24 - 12           | -                           |
| Use group C               |                       |                       |                   |                             |
|                           | 600 V                 | 30 A                  | 24 - 12           | -                           |

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

| EAC<br>Approval ID: RU C-DE.BL08.B.00511 |  |  |  |  |
|------------------------------------------|--|--|--|--|
|------------------------------------------|--|--|--|--|

| cULus Recognized<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                 | 30 A                  | 28 - 10           | -                           |
| Use group C                             |                       |                       |                   |                             |
|                                         | 600 V                 | 30 A                  | 28 - 10           | -                           |

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

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27141151 |
| ECLASS-12.0 | 27141151 |
| ECLASS-13.0 | 27250306 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC002021 |
|----------|----------|

### UNSPSC

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

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## Environmental product compliance

|            |                                                         |
|------------|---------------------------------------------------------|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

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