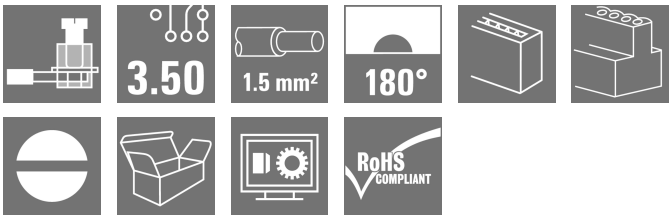
Data sheet

# BL 3.50/12/180 SN BK BX

**Weidmüller Interface GmbH & Co. KG**
Klingenbergstraße 26
D-32758 Detmold
Germany

www.weidmueller.com

## Product image




Female connectors with clamping yoke screw system for connecting conductors at 3.50 mm pitch. They provide space for labelling and can be coded.

### General ordering data

| | |
|---|---|
| Version | PCB plug-in connector, female plug, 3.50 mm, Number of poles: 12, 180°, Clamping yoke connection, Clamping range, max. : 1.5 mm², Box |
| Order No. | 1615730000 |
| Type | BL 3.50/12/180 SN BK BX |
| GTIN (EAN) | 4008190060817 |
| Qty. | 42 items |
| Product data | IEC: 320 V / 17 A / 0.2 - 1.5 mm²<br>UL: 300 V / 10 A / AWG 28 - AWG 14 |
| Packaging | Box |

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## Technical data

### Approvals

| | |
|---|---|
| Approvals | |
| ROHS | Conform |
| UL File Number Search | UL Website |
| Certificate No. (UR) | E60693 |

### Dimensions and weights

| | | | |
|---|---|---|---|
| Depth | 18.5 mm | Depth (inches) | 0.7283 inch |
| Height | 13 mm | Height (inches) | 0.5118 inch |
| Width | 42 mm | Width (inches) | 1.6535 inch |
| Net weight | 10.61 g | | |

### Environmental Product Compliance

| | | |
|---|---|---|
| RoHS Compliance Status | Compliant without exemption | |
| REACH SVHC | No SVHC above 0.1 wt% | |
| Product Carbon Footprint | Cradle to gate | 0,464 kg CO2 eq. |

### System Parameters

| | | | | |
|---|---|---|---|---|
| Product family | OMNIMATE Signal - series BL/SL 3.50 | | | |
| Type of connection | Field connection | | | |
| Wire connection method | Clamping yoke connection | | | |
| Pitch in mm (P) | 3.50 mm | | | |
| Pitch in inches (P) | 0.138 " | | | |
| Conductor outlet direction | 180° | | | |
| Number of poles | 12 | | | |
| L1 in mm | 38.50 mm | | | |
| L1 in inches | 1.516 " | | | |
| Number of rows | 1 | | | |
| Pin series quantity | 1 | | | |
| Rated cross-section | 1.5 mm² | | | |
| Touch-safe protection acc. to DIN VDE 57 106 | Safe from finger touch | | | |
| Touch-safe protection acc. to DIN VDE 0470 | IP20 plugged/ IP10 unplugged | | | |
| Protection degree | IP20, when fully mounted | | | |
| Volume resistance | ≤5 mΩ | | | |
| Can be coded | Yes | | | |
| Stripping length | 6 mm | | | |
| Clamping screw | M 2 | | | |
| Screwdriver blade | 0.4 x 2.5 | | | |
| Screwdriver blade standard | DIN 5264 | | | |
| Plugging cycles | 25 | | | |
| Plugging force/pole, max. | 7 N | | | |
| Pulling force/pole, max. | 5 N | | | |
| Tightening torque | Torque type | Wire connection | | |
| | Usage information | Tightening torque | min. | 0.2 Nm |
| | | | max. | 0.25 Nm |

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### Material data

| | | | |
|---|---|---|---|
| Insulating material | PBT | Colour | black |
| Colour chart (similar) | RAL 9011 | Insulating material group | IIIa |
| Comparative Tracking Index (CTI) | ≥ 200 | Moisture Level (MSL) | |
| UL 94 flammability rating | V-0 | Contact material | Cu-alloy |
| Contact surface | tinned | Layer structure of plug contact | 4...8 µm Sn hot-dip tinned |
| Storage temperature, min. | -40 °C | Storage temperature, max. | 70 °C |
| Operating temperature, min. | -50 °C | Operating temperature, max. | 100 °C |
| Temperature range, installation, min. | -30 °C | Temperature range, installation, max. | 100 °C |

### Conductors suitable for connection

| | |
|---|---|
| Clamping range, min. | 0.08 mm² |
| Clamping range, max. | 1.5 mm² |
| Wire connection cross section AWG, min. | AWG 28 |
| Wire connection cross section AWG, max. | AWG 14 |
| Solid, min. H05(07) V-U | 0.2 mm² |
| Solid, max. H05(07) V-U | 1.5 mm² |
| Flexible, min. H05(07) V-K | 0.2 mm² |
| Flexible, max. H05(07) V-K | 1.5 mm² |
| w. plastic collar ferrule, DIN 46228 pt 4, min. | 0.2 mm² |
| w. plastic collar ferrule, DIN 46228 pt 4, max. | 1.5 mm² |
| w. wire end ferrule, DIN 46228 pt 1, min. | 0.2 mm² |
| w. wire end ferrule, DIN 46228 pt 1, max. | 1.5 mm² |
| Plug gauge in accordance with EN 60999 a x b; ø | 2.4 mm x 1.5 mm |

| | | | | |
|---|---|---|---|---|
| Clampable conductor | Cross-section for conductor connection | Type | fine-wired | |
| | | nominal | 0.5 mm² | |
| | wire end ferrule | Stripping length | nominal | 8 mm |
| | | Recommended wire-end ferrule | H0,5/12 OR | |
| | | Stripping length | nominal | 6 mm |
| | | Recommended wire-end ferrule | H0,5/6 | |
| | Cross-section for conductor connection | Type | fine-wired | |
| | | nominal | 0.75 mm² | |
| | wire end ferrule | Stripping length | nominal | 8 mm |
| | | Recommended wire-end ferrule | H0,75/12 W | |
| | | Stripping length | nominal | 6 mm |
| | | Recommended wire-end ferrule | H0,75/6 | |
| | Cross-section for conductor connection | Type | fine-wired | |
| | | nominal | 1 mm² | |
| | wire end ferrule | Stripping length | nominal | 8 mm |
| | | Recommended wire-end ferrule | H1,0/12 GE | |
| | | Stripping length | nominal | 6 mm |
| | | Recommended wire-end ferrule | H1,0/6 | |
| | Cross-section for conductor connection | Type | fine-wired | |
| | | nominal | 0.25 mm² | |
| | wire end ferrule | Stripping length | nominal | 8 mm |

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|---|---|---|---|
| | | Recommended wire-end ferrule | H0,25/10 HBL |
| | | Stripping length | nominal 5 mm |
| | | Recommended wire-end ferrule | H0,25/5 |
| | Cross-section for conductor connection | Type | fine-wired |
| | | nominal | 0.34 mm² |
| | wire end ferrule | Stripping length | nominal 8 mm |
| | | Recommended wire-end ferrule | H0,34/10 TK |
| Reference text | The outside diameter of the plastic collar should not be larger than the pitch (P), Length of ferrules is to be chosen depending on the product and the rated voltage. | | |

### Rated data acc. to IEC

| | | | |
|---|---|---|---|
| tested acc. to standard | IEC 60664-1, IEC 61984 | Rated current, min. number of poles (Tu=20°C) | 17 A |
| Rated current, max. number of poles (Tu=20°C) | 12 A | Rated current, min. number of poles (Tu=40°C) | 14.5 A |
| Rated current, max. number of poles (Tu=40°C) | 10 A | Rated voltage for surge voltage class / pollution degree II/2 | 320 V |
| Rated voltage for surge voltage class / pollution degree III/2 | 160 V | Rated voltage for surge voltage class / pollution degree III/3 | 160 V |
| Rated impulse voltage for surge voltage class/ pollution degree II/2 | 2.5 kV | Rated impulse voltage for surge voltage class/ pollution degree III/2 | 2.5 kV |
| Rated impulse voltage for surge voltage class/ contamination degree III/3 | 2.5 kV | Short-time withstand current resistance | 3 x 1s with 100 A |

### Rated data acc. to CSA

| | | | |
|---|---|---|---|
| Institute (CSA) | CSA | Certificate No. (CSA) | 154685-1318353 |
| Rated voltage (Use group B / CSA) | 300 V | Rated voltage (Use group D / CSA) | 300 V |
| Rated current (Use group B / CSA) | 10 A | Rated current (Use group D / CSA) | 10 A |
| Wire cross-section, AWG, min. | AWG 28 | Wire cross-section, AWG, max. | AWG 14 |
| Reference to approval values | Specifications are maximum values, details - see approval certificate. | | |

### Rated data acc. to UL 1059

| | | | |
|---|---|---|---|
| Institute (UR) | UR | Certificate No. (UR) | E60693 |
| Rated voltage (Use group B / UL 1059) | 300 V | Rated voltage (Use group D / UL 1059) | 300 V |
| Rated current (Use group B / UL 1059) | 10 A | Rated current (Use group D / UL 1059) | 10 A |
| Wire cross-section, AWG, min. | AWG 28 | Wire cross-section, AWG, max. | AWG 14 |
| Reference to approval values | Specifications are maximum values, details - see approval certificate. | | |

### Packing

| | | | |
|---|---|---|---|
| Packaging | Box | VPE length | 352.00 mm |
| VPE width | 136.00 mm | VPE height | 25.00 mm |

### Type tests

| | | |
|---|---|---|
| Test: Durability of markings | Standard | DIN EN 61984 section 7.3.2 / 09.02 taking pattern from DIN EN 60068-2-70 / 07.96 |
| | Test | mark of origin, type identification, approval marking SEV, approval marking CSA |
| | Evaluation | available |

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| | | | |
|---|---|---|---|
| | Test | durability | |
| | Evaluation | passed | |
| Test: Misengagement (Non-interchangeability) | Standard | DIN EN 61984 section 6.3 and 6.9.1 / 09.02, DIN IEC 60512 part 7 section 5 / 05.94 | |
| | Test | 180° turned with coding elements | |
| | Evaluation | passed | |
| Test: Clampable cross section | Standard | DIN EN 60999-1 section 7 and 9.1 / 12.00, DIN EN 60947-1 section 8.2.4.5.1 / 12.99 | |
| | Conductor type | Type of conductor and conductor cross-section | solid 0.2 mm² |
| | | Type of conductor and conductor cross-section | stranded 0.2 mm² |
| | | Type of conductor and conductor cross-section | solid 1.5 mm² |
| | | Type of conductor and conductor cross-section | stranded 1.5 mm² |
| | | Type of conductor and conductor cross-section | AWG 28/1 |
| | | Type of conductor and conductor cross-section | AWG 28/19 |
| | | Type of conductor and conductor cross-section | AWG 16/1 |
| | | Type of conductor and conductor cross-section | AWG 16/19 |
| | Evaluation | passed | |
| Test for damage to and accidental loosening of conductors | Standard | DIN EN 60999-1 section 9.4 / 12.00 | |
| | Requirement | 0.2 kg | |
| | Conductor type | Type of conductor and conductor cross-section | AWG 28/1 |
| | | Type of conductor and conductor cross-section | AWG 28/19 |
| | Evaluation | passed | |
| | Requirement | 0.3 kg | |
| | Conductor type | Type of conductor and conductor cross-section | 2 × AWG 24/1 |
| | | Type of conductor and conductor cross-section | 2 × AWG 24/19 with wire end ferrule |
| | Evaluation | passed | |
| | Requirement | 0.4 kg | |
| | Conductor type | Type of conductor and conductor cross-section | solid 1.5 mm² |
| | | Type of conductor and conductor cross-section | stranded 1.5 mm² |
| | | Type of conductor and conductor cross-section | AWG 16/7 |
| | Evaluation | passed | |
| Pull-out test | Standard | DIN EN 60999-1 section 9.5 / 12.00 | |
| | Requirement | ≥5 N | |

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| | | |
|---|---|---|
| Conductor type | Type of conductor and conductor cross-section | AWG 28/1 |
| | Type of conductor and conductor cross-section | AWG 28/19 |
| Evaluation | passed | |
| Requirement | ≥10 N | |
| Conductor type | Type of conductor and conductor cross-section | 2 × AWG 24/1 |
| | Type of conductor and conductor cross-section | 2 × AWG 24/19 with wire end ferrule |
| Evaluation | passed | |
| Requirement | ≥40 N | |
| Conductor type | Type of conductor and conductor cross-section | H05V-U1.5 |
| | Type of conductor and conductor cross-section | H05V-K1.5 |
| | Type of conductor and conductor cross-section | AWG 16/7 |
| Evaluation | passed | |

### Important note

| | |
|---|---|
| IPC conformity | Conformity: The products are developed, manufactured and delivered according international recognized standards and norms and comply with the assured properties in the data sheet resp. fulfill decorative properties in accordance with IPC-A-610 "Class 2". Further claims on the products can be evaluated on request. |
| Notes | • Additional variants on request<br>• Gold-plated contact surfaces on request<br>• Rated current related to rated cross-section & min. No. of poles.<br>• Max. outer diameter of the conductor: 2.9 mm<br>• Wire end ferrule without plastic collar to DIN 46228/1<br>• Wire end ferrule with plastic collar to DIN 46228/4<br>• P on drawing = pitch<br>• Rated data refer only to the component itself. Clearance and creepage distances to other components are to be designed in accordance with the relevant application standards.<br>• In accordance with IEC 61984, OMNIMATE-connectors are connectors without breaking capacity (COC). During designated use, connectors are not allowed to be engaged or disengaged when live or under load<br>• Long term storage of the product with average temperature of 50 °C and maximum humidity 70%, 36 months |

### Classifications

| | | | |
|---|---|---|---|
| ETIM 8.0 | EC002638 | ETIM 9.0 | EC002638 |
| ETIM 10.0 | EC002638 | ECLASS 14.0 | 27-46-02-02 |
| ECLASS 15.0 | 27-46-02-02 | | |

# BL 3.50/12/180 SN BK BX

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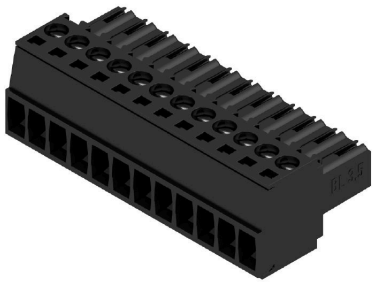
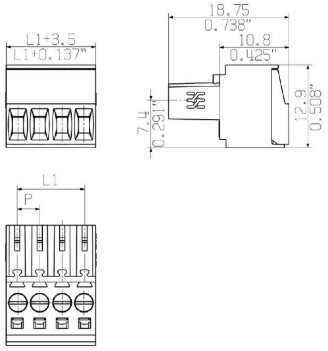
## Drawings

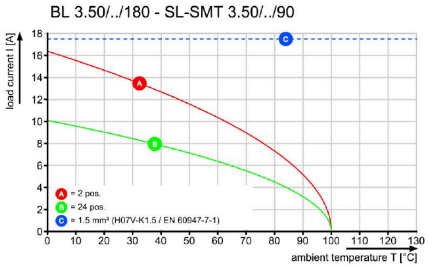
### Product image



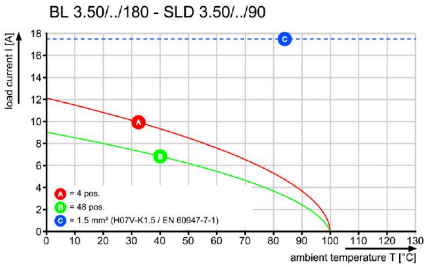
### Dimensional drawing



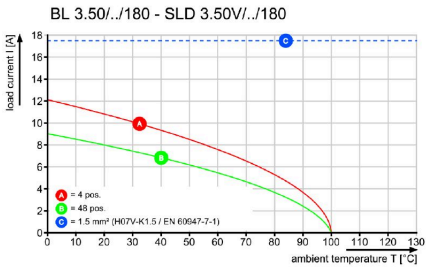

### Graph

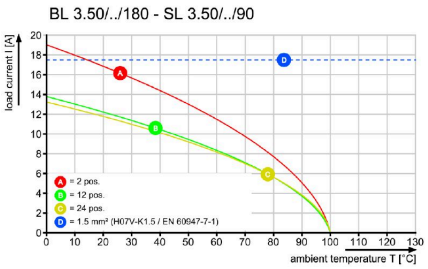



### Graph




### Graph




### Graph