

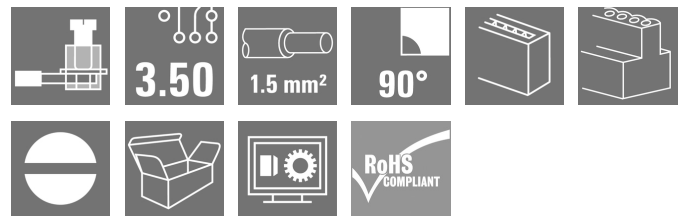
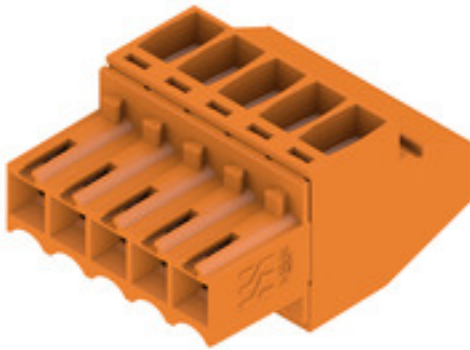
**BL 3.50/05/90 SN OR BX****Weidmüller Interface GmbH & Co. KG**

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: 5, 90°, Clamping yoke connection, Clamping range, max. : 1.5 mm², Box |
| Order No.    | <a href="#">1638580000</a>  |
| Type         | BL 3.50/05/90 SN OR BX  |
| GTIN (EAN)   | 4008190276126   |
| Qty.         | 102 pc(s).  |
| Product data | IEC: 320 V / 12 A / 0.2 - 1.5 mm²<br>UL: 300 V / 8 A / AWG 28 - AWG 14  |
| Packaging    | Box   |

Creation date July 25, 2024 2:00:48 AM CEST

Catalogue status 13.07.2024 / We reserve the right to make technical changes.

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## Technical data

## Dimensions and weights

|            |          |                 |            |
|------------|----------|-----------------|------------|
| Depth      | 22.45 mm | Depth (inches)  | 0.884 inch |
| Height     | 12 mm    | Height (inches) | 0.472 inch |
| Width      | 17.5 mm  | Width (inches)  | 0.689 inch |
| Net weight | 2.51 g   |                 |            |

## 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)                              | 3.5 mm                              |                   |  |
| Pitch in inches (P)                          | 0.138 "                             |                   |  |
| Conductor outlet direction                   | 90°                                 |                   |  |
| Number of poles                              | 5                                   |                   |  |
| L1 in mm                                     | 14 mm                               |                   |  |
| L1 in inches                                 | 0.551 "                             |                   |  |
| Number of rows                               | 1                                   |                   |  |
| Pin series quantity                          | 1                                   |                   |  |
| Rated cross-section                          | 1.5 mm <sup>2</sup>                 |                   |  |
| 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 | <div>min. 0.2 Nm</div> <div>max. 0.25 Nm</div> |

## Material data

|                                       |                            |                                       |        |
|---------------------------------------|----------------------------|---------------------------------------|--------|
| Insulating material                   | PBT                        | Colour                                | orange |
| Colour chart (similar)                | RAL 2000                   | Insulating material group             | IIIa   |
| Comparative Tracking Index (CTI)      | ≥ 200                      | 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 mm <sup>2</sup> |
| Clamping range, max.                    | 1.5 mm <sup>2</sup>  |
| Wire connection cross section AWG, min. | AWG 28               |

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|   |  |                              |                              |      |
|---|--|------------------------------|------------------------------|------|
| Wire connection cross section AWG, max.                             | AWG 14   |                              |                              |      |
| Solid, min. H05(07) V-U   | 0.2 mm <sup>2</sup>  |                              |                              |      |
| Solid, max. H05(07) V-U   | 1.5 mm <sup>2</sup>  |                              |                              |      |
| Flexible, min. H05(07) V-K  | 0.2 mm <sup>2</sup>  |                              |                              |      |
| Flexible, max. H05(07) V-K  | 1.5 mm <sup>2</sup>  |                              |                              |      |
| w. plastic collar ferrule, DIN 46228 pt 4, 0.2 mm <sup>2</sup> min. |  |                              |                              |      |
| w. plastic collar ferrule, DIN 46228 pt 4, 1.5 mm <sup>2</sup> max. |  |                              |                              |      |
| w. wire end ferrule, DIN 46228 pt 1, min.                           | 0.2 mm <sup>2</sup>  |                              |                              |      |
| w. wire end ferrule, DIN 46228 pt 1, max.                           | 1.5 mm <sup>2</sup>  |                              |                              |      |
| 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 mm <sup>2</sup>          |      |
|   | wire end ferrule   | Stripping length             | nominal                      | 8 mm |
|   |  | Recommended wire-end ferrule | <a href="#">H0.5/12 OR</a>   |      |
|   |  | Stripping length             | nominal                      | 6 mm |
|   |  | Recommended wire-end ferrule | <a href="#">H0.5/6</a>       |      |
|   | Cross-section for conductor connection   | Type                         | fine-wired                   |      |
|   |  | nominal                      | 0.75 mm <sup>2</sup>         |      |
|   | wire end ferrule   | Stripping length             | nominal                      | 8 mm |
|   |  | Recommended wire-end ferrule | <a href="#">H0.75/12 W</a>   |      |
|   |  | Stripping length             | nominal                      | 6 mm |
|   |  | Recommended wire-end ferrule | <a href="#">H0.75/6</a>      |      |
|   | Cross-section for conductor connection   | Type                         | fine-wired                   |      |
|   |  | nominal                      | 1 mm <sup>2</sup>            |      |
|   | wire end ferrule   | Stripping length             | nominal                      | 8 mm |
|   |  | Recommended wire-end ferrule | <a href="#">H1.0/12 GE</a>   |      |
|   |  | Stripping length             | nominal                      | 6 mm |
|   |  | Recommended wire-end ferrule | <a href="#">H1.0/6</a>       |      |
|   | Cross-section for conductor connection   | Type                         | fine-wired                   |      |
|   |  | nominal                      | 0.25 mm <sup>2</sup>         |      |
|   | wire end ferrule   | Stripping length             | nominal                      | 8 mm |
|   |  | Recommended wire-end ferrule | <a href="#">H0.25/10 HBL</a> |      |
|   |  | Stripping length             | nominal                      | 5 mm |
|   |  | Recommended wire-end ferrule | <a href="#">H0.25/5</a>      |      |
|   | Cross-section for conductor connection   | Type                         | fine-wired                   |      |
|   |  | nominal                      | 0.34 mm <sup>2</sup>         |      |
|   | wire end ferrule   | Stripping length             | nominal                      | 8 mm |
|   |  | Recommended wire-end ferrule | <a href="#">H0.34/10 TK</a>  |      |
| 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. |                              |                              |      |

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## Technical data

## Rated data acc. to IEC

|   |                        |   |                   |
|---|------------------------|---|-------------------|
| tested acc. to standard   | IEC 60664-1, IEC 61984 | Rated current, min. number of poles (Tu=20°C)                         | 12 A              |
| Rated current, max. number of poles (Tu=20°C)                             | 10 A                   | Rated current, min. number of poles (Tu=40°C)                         | 10 A              |
| Rated current, max. number of poles (Tu=40°C)                             | 8 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)                   |  | 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)                        |  | 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) | 8 A   | Rated current (Use group D / UL 1059) | 8 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 | 348 mm |
| VPE width | 138 mm | VPE height | 32 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  |
|                              | Test       | durability   |
|                              | Evaluation | passed   |

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|   |                |  |
|---|----------------|--|
| 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 solid 0.2 mm <sup>2</sup> conductor cross-section            |
|   |                | Type of conductor and stranded 0.2 mm <sup>2</sup> conductor cross-section         |
|   |                | Type of conductor and solid 1.5 mm <sup>2</sup> conductor cross-section            |
|   |                | Type of conductor and stranded 1.5 mm <sup>2</sup> conductor cross-section         |
|   |                | Type of conductor and AWG 28/1 conductor cross-section                             |
|   |                | Type of conductor and AWG 28/19 conductor cross-section                            |
|   |                | Type of conductor and AWG 16/1 conductor cross-section                             |
|   |                | Type of conductor and AWG 16/19 conductor cross-section                            |
|   | 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 AWG 28/1 conductor cross-section                             |
|   |                | Type of conductor and AWG 28/19 conductor cross-section                            |
|   | Evaluation     | passed   |
|   | Requirement    | 0.3 kg   |
|   | Conductor type | Type of conductor and 2 × AWG 24/1 conductor cross-section                         |
|   |                | Type of conductor and 2 × AWG 24/19 with conductor cross-section wire end ferrule  |
|   | Evaluation     | passed   |
|   | Requirement    | 0.4 kg   |
|   | Conductor type | Type of conductor and solid 1.5 mm <sup>2</sup> conductor cross-section            |
|   |                | Type of conductor and stranded 1.5 mm <sup>2</sup> conductor cross-section         |
|   |                | Type of conductor and AWG 16/7 conductor cross-section                             |
|   | Evaluation     | passed   |

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|               |                |  |
|---------------|----------------|--|
| Pull-out test | Standard       | DIN EN 60999-1 section 9.5 / 12.00                         |
|               | Requirement    | ≥5 N   |
|               | Conductor type | Type of conductor and AWG 28/1 conductor cross-section     |
|               |                | Type of conductor and AWG 28/19 conductor cross-section    |
|               | Evaluation     | passed   |
|               | Requirement    | ≥10 N  |
|               | Conductor type | Type of conductor and 2 × AWG 24/1 conductor cross-section |
|               |                | Type of conductor and 2 × AWG 24/19 with wire end ferrule  |
|               | Evaluation     | passed   |
|               | Requirement    | ≥40 N  |
|               | Conductor type | Type of conductor and H05V-U1.5 conductor cross-section    |
|               |                | Type of conductor and H05V-K1.5 conductor cross-section    |
|               |                | Type of conductor and AWG 16/7 conductor cross-section     |
|               | Evaluation     | passed   |

## Classifications

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 6.0    | EC002638    | ETIM 7.0    | EC002638    |
| ETIM 8.0    | EC002638    | ETIM 9.0    | EC002638    |
| ECLASS 9.0  | 27-44-03-09 | ECLASS 9.1  | 27-44-03-09 |
| ECLASS 10.0 | 27-44-03-09 | ECLASS 11.0 | 27-46-02-02 |
| ECLASS 12.0 | 27-46-02-02 | ECLASS 13.0 | 27-46-02-02 |

## Environmental Product Compliance

|                        |                             |
|------------------------|-----------------------------|
| REACH SVHC             | /                           |
| RoHS Compliance Status | Compliant without exemption |

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## 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          | <ul style="list-style-type: none"> <li>• Additional variants on request</li> <li>• Gold-plated contact surfaces on request</li> <li>• Max. outer diameter of the conductor: 2.9 mm</li> <li>• Max. outer diameter of the conductor: 2.9 mm</li> <li>• Wire end ferrule without plastic collar to DIN 46228/1</li> <li>• Wire end ferrule with plastic collar to DIN 46228/4</li> <li>• P on drawing = pitch</li> <li>• 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.</li> <li>• 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</li> <li>• Long term storage of the product with average temperature of 50 °C and maximum humidity 70%, 36 months</li> </ul> |

## Approvals

Approvals



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

## Downloads

|   |  |
|---|--|
| Approval/Certificate/Document of Conformity | <a href="#">Declaration of the Manufacturer</a>  |
| Engineering Data                            | <a href="#">CAD data – STEP</a>  |
| Catalogues                                  | <a href="#">Catalogues in PDF-format</a>   |
| Brochures                                   | <a href="#">FL DRIVES EN</a><br><a href="#">MB DEVICE MANUF. EN</a><br><a href="#">FL DRIVES DE</a><br><a href="#">FL BUILDING SAFETY EN</a><br><a href="#">FL APPL LED LIGHTING EN</a><br><a href="#">FL INDUSTR.CONTROLS EN</a><br><a href="#">FL MACHINE SAFETY EN</a><br><a href="#">FL HEATING ELECTR EN</a><br><a href="#">FL APPL INVERTER EN</a><br><a href="#">FL BASE STATION EN</a><br><a href="#">FL ELEVATOR EN</a><br><a href="#">FL POWER SUPPLY EN</a><br><a href="#">FL 72H SAMPLE SER EN</a><br><a href="#">PO OMNIMATE EN</a><br><a href="#">PO OMNIMATE EN</a> |

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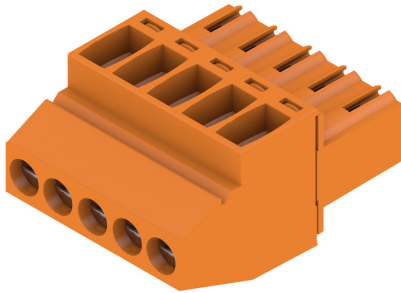
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## Drawings

### Product image



### Dimensional drawing



### Graph



### Graph





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## Accessories

## Coding elements

**Only connects what is supposed to be connected: the right connection at the right place.**

Coding elements and locking devices clearly assign connecting elements during the manufacturing process and operation

The coding elements and locking devices are inserted prior to assembly or during the cable assembly phase. The Weidmüller alternative: configure online using the variant configurator to precode prior to delivery.

Incorrect assembly on the circuit board and incorrect plugging of connecting elements is no longer possible. The advantage: no troubleshooting during manufacture and no operational errors by the user.

## General ordering data

| Type       | BL SL 3.5 KO SW            | Version  | Product data | Packaging |
|------------|----------------------------|--|--------------|-----------|
| Order No.  | <a href="#">1610100000</a> | PCB plug-in connector, Accessories, Coding element, black, Number  |              | Box       |
| GTIN (EAN) | 4008190187637              | of poles: 1  |              |           |
| Qty.       | 100 pc(s).                 |  |              |           |
| Type       | BL SL 3.5 KO OR            | Version  | Product data | Packaging |
| Order No.  | <a href="#">1693430000</a> | PCB plug-in connector, Accessories, Coding element, orange, Number |              | Box       |
| GTIN (EAN) | 4008190867447              | of poles: 1  |              |           |
| Qty.       | 100 pc(s).                 |  |              |           |

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DIE DEUTSCHE VERSION IST VERBINDLICH  
THE GERMAN VERSION IS BINDING



SCREWDRIVER



CONDUCTOR



For the mounting of PCBs, it should be noted that the rated data given in the catalogue relates only to the connection elements. The necessary creepage and clearance paths must be observed in connection with the respective applicant in accordance to VDE 0110. The current-carrying capacity and pitch tolerance is to be determined according to DIN IEC 326 part 3 very fine.

Weidmüller connectors are tested to the DIN VDE 0627 standard, and are valid for its field of application. Provided that the components are used to the intended purpose, all requirements with respect to the occurring of electrical, mechanical, thermic and corrosive stress will be satisfied.

SHOWN : BL 3.50/05/90

|               |   |             |                           |   |  |  |
|---------------|---|-------------|---------------------------|---|--|--|
|               | METRIC TOLERANCES:<br>X. = ±0.3<br>X.X = ±0.1<br>X.XX = ±0.05 |             |                           |   | CAT.NO.: . . .                                 |  |
|               | 60340/0<br>15.09.11 HELIS_MA 01                               |             | MODIFICATION              |   | <b>Weidmüller</b>                              |  |
|               |   |             |                           |   | DRAWING NO. <b>C 21346</b> ISSUE NO. <b>15</b> |  |
|               |   | DATE        | NAME                      | <b>BL 3.50/././90...</b><br>BUCHSENSTECKER<br>FEMALE PLUG |  |  |
|               |   | DRAWN       | 24.07.2003 KOWOLLIK_R     |   |  |  |
|               |   | RESPONSIBLE | LANG_T                    |   |  |  |
| SCALE: 5/1    |   | CHECKED     | 15.09.2011 RIEPENHAUSEN_H | PRODUCT FILE: BL 3.50                                     |  |  |
| SUPERSEDES: . |   | APPROVED    | HECKERT_M                 | 7369  |  |  |

|    |        |           |
|----|--------|-----------|
| 24 | 80,50  | 3,169     |
| 23 | 77,00  | 3,031     |
| 22 | 73,50  | 2,894     |
| 21 | 70,00  | 2,756     |
| 20 | 66,50  | 2,618     |
| 19 | 63,00  | 2,480     |
| 18 | 59,50  | 2,343     |
| 17 | 56,00  | 2,205     |
| 16 | 52,50  | 2,067     |
| 15 | 49,00  | 1,929     |
| 14 | 45,50  | 1,791     |
| 13 | 42,00  | 1,654     |
| 12 | 38,50  | 1,516     |
| 11 | 35,00  | 1,378     |
| 10 | 31,50  | 1,240     |
| 9  | 28,00  | 1,102     |
| 8  | 24,50  | 0,965     |
| 7  | 21,00  | 0,827     |
| 6  | 17,50  | 0,689     |
| 5  | 14,00  | 0,551     |
| 4  | 10,50  | 0,413     |
| 3  | 7,00   | 0,276     |
| 2  | 3,50   | 0,138     |
| n  | L1[mm] | L1 [Inch] |