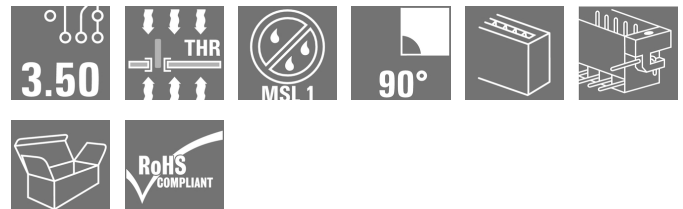


# OMNIMATE Signal - series BL/SL 3.50 SL-SMT 3.50/05/90LF 3.2SN BK BX

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 16  
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**High-temperature-resistant male header, 3.50 mm pitch.**

- **Plugging direction parallel (90°), straight 180° or angled (135°) to PCB**
- **Housing variants: closed side (G), screw flange (F), solder flange (LF) or snap-on solder flange (RF)**
- **Optimised for the SMT process**
- **Pin length 3.2 mm universal for all soldering methods**
- **Pin length 1.5 mm optimised for reflow soldering methods**
- **Packed either in a box (BX) or tape-on-reel (RL)**
- **Male header can be coded**

## General ordering data

|              |                                                                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type         | SL-SMT 3.50/05/90LF 3.2SN BK BX                                                                                                                                |
| Order No.    | <a href="#">1841890000</a>                                                                                                                                     |
| Version      | PCB plug-in connector, male header, Solder flange, THT/THR solder connection, 3.50 mm, No. of poles: 5, 90°, Solder pin length (l): 3.2 mm, tinned, Black, Box |
| GTIN (EAN)   | 4032248353248                                                                                                                                                  |
| Qty.         | 72 pc(s).                                                                                                                                                      |
| Product data | IEC: 320 V / 15 A<br>UL: 300 V / 10 A                                                                                                                          |
| Packaging    | Box                                                                                                                                                            |

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### Technical data

#### Dimensions and weights

|                          |            |                 |            |
|--------------------------|------------|-----------------|------------|
| Width                    | 24.5 mm    | Width (inches)  | 0.965 inch |
| Height                   | 10.7 mm    | Height (inches) | 0.421 inch |
| Height of lowest version | 7.5 mm     | Depth           | 11.1 mm    |
| Depth (inches)           | 0.437 inch | Net weight      | 1.778 g    |

#### System specifications

|                                                   |                                     |                                              |                              |
|---------------------------------------------------|-------------------------------------|----------------------------------------------|------------------------------|
| Product family                                    | OMNIMATE Signal - series BL/SL 3.50 | Type of connection                           | Solder connection            |
| Mounting onto the PCB                             | THT/THR solder connection           | Pitch in mm (P)                              | 3.5 mm                       |
| Pitch in inches (P)                               | 0.138 inch                          | Outgoing elbow                               | 90°                          |
| No. of poles                                      | 5                                   | Number of solder pins per pole               | 1                            |
| Solder pin length (l)                             | 3.2 mm                              | Solder pin length tolerance                  | 0 / -0.3 mm                  |
| Tolerance of solder pin position                  | ± 0.1 mm                            | Solder pin dimensions                        | d = 1.2 mm, Octagonal        |
| Solder pin dimensions = d tolerance               | 0 / -0.03 mm                        | Solder eyelet hole diameter (D)              | 1.4 mm                       |
| Solder eyelet hole diameter tolerance (D)+ 0.1 mm |                                     | Outside diameter of solder pad               | 2.3 mm                       |
| Template aperture diameter                        | 2.1 mm                              | L1 in mm                                     | 14 mm                        |
| L1 in inches                                      | 0.551 inch                          | Number of rows                               | 1                            |
| Pin series quantity                               | 1                                   | Touch-safe protection acc. to DIN VDE 57 106 | Safe from back-of-hand touch |
| Touch-safe protection acc. to DIN VDE 0470        | IP 10                               | Volume resistance                            | 4.50 mΩ                      |
| Can be coded                                      | Yes                                 | Plugging cycles                              | 25                           |
| push-in force/pole                                | 10 N                                | Withdrawal force per pole                    | 8 N                          |
| Packaging                                         | Box                                 |                                              |                              |

#### Material data

|                                       |                       |                                       |                       |
|---------------------------------------|-----------------------|---------------------------------------|-----------------------|
| Insulating material                   | LCP GF                | Colour                                | Black                 |
| Colour chart (similar)                | RAL 9011              | Insulating material group             | IIIa                  |
| CTI                                   | ≥ 175                 | Insulation resistance                 | ≥ 10 <sup>8</sup> Ω   |
| Moisture Level (MSL)                  | 1                     | UL 94 flammability rating             | V-0                   |
| Contact material                      | CuSn                  | Contact surface                       | tinned                |
| Layer structure of solder connection  | 2-3 µm Ni / 5-7 µm Sn | Layer structure of plug contact       | 2-3 µm Ni / 5-7 µm Sn |
| Storage temperature, min.             | -25 °C                | Storage temperature, max.             | 55 °C                 |
| Max. relative humidity during storage | 80 %                  | Operating temperature, min.           | -50 °C                |
| Operating temperature, max.           | 100 °C                | Temperature range, installation, min. | -30 °C                |
| Temperature range, installation, max. | 100 °C                |                                       |                       |

#### Rated data acc. to IEC

|                                                                           |                        |                                                                       |                   |
|---------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------|-------------------|
| tested acc. to standard                                                   | IEC 60664-1, IEC 61984 | Rated current, min. no. of poles (Tu=20°C)                            | 15 A              |
| Rated current, max. no. of poles (Tu=20°C)                                | 12 A                   | Rated current, min. no. of poles (Tu=40°C)                            | 13 A              |
| Rated current, max. no. 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 |

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**Technical data**
**Rated data acc. to CSA**

|                                                                                   |                                                                        |                             |       |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------|-------|
| Institute (CSA)                                                                   |                                                                        | Certificate No. (CSA)       |       |
|  |                                                                        | 200039-1176845              |       |
| Rated voltage (Use group B)                                                       | 300 V                                                                  | Rated voltage (use group D) | 300 V |
| Rated current (use group B)                                                       | 10 A                                                                   | Rated current (use group D) | 10 A  |
| 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)                                                       | 300 V                                                                  | Rated voltage (use group D) | 300 V |
| Rated current (use group B)                                                       | 10 A                                                                   | Rated current (use group D) | 10 A  |
| Reference to approval values                                                      | Specifications are maximum values, details - see approval certificate. |                             |       |

**Classifications**

|            |             |            |             |
|------------|-------------|------------|-------------|
| ETIM 3.0   | EC001284    | ETIM 4.0   | EC002637    |
| ETIM 5.0   | EC002637    | ETIM 6.0   | EC002637    |
| UNSPSC     | 30-21-18-10 | eClass 5.1 | 27-26-07-04 |
| eClass 6.2 | 27-26-07-04 | eClass 7.1 | 27-44-04-02 |
| eClass 8.1 | 27-44-04-02 | eClass 9.0 | 27-44-04-02 |
| eClass 9.1 | 27-44-04-02 |            |             |

**Notes**

|                |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Notes          |                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>• Gold-plated contact surfaces on request</li> <li>• Rated current related to rated cross-section &amp; min. No. of poles.</li> <li>• Diameter of solder eyelet D = 1.4+0.1mm</li> <li>• Solder eyelet diameter D = 1.5 + 0.1 mm, from 9 poles</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> </ul> |
| 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. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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**Technical data****Approvals**

Approvals



ROHS

Conform

**Downloads**Approval/Certificate/Document of  
Conformity[Declaration of the Manufacturer](#)

Brochure/Catalogue

[FL DRIVES EN](#)  
[MB SMT EN](#)  
[FL DRIVES DE](#)  
[MB DEVICE MANUF. EN](#)  
[CAT 2 PORTFOLIOGUIDE EN](#)  
[FL BUILDING SAFETY EN](#)  
[FL APPL LED LIGHTING EN](#)  
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[FL MACHINE SAFETY EN](#)  
[FL HEATING ELECTRON EN](#)  
[FL APPL INVERTER EN](#)  
[FL\\_BASE\\_STATION\\_EN](#)  
[FL ELEVATOR EN](#)  
[FL POWER SUPPLY EN](#)  
[FL 72H SAMPLE SER EN](#)  
[PO OMNIMATE EN](#)

Engineering Data

[SL-SMT.zip](#)  
[STEP](#)

SMT white paper

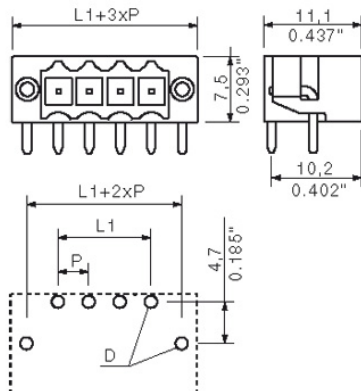
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# Drawings

## Dimensional drawing



## Recommended wave soldering profiles

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### Single Wave:



### Double Wave:



### Wave soldering profiles

Wired connection elements should be processed in accordance with the DIN EN 61760-1 standard. We have included two recommendations for practical wave soldering profiles, with which Weidmüller PCB terminals and connectors are qualified.

When choosing a suitable profile for your application, the following factors also need to be considered:

- PCB thickness
- Proportion of Cu in the layers
- Single/double-sided assembly
- Product range
- Heating and cooling rates

The single and double wave profiles each indicate the recommended operating range, including the maximum soldering temperature of 260°C. In practice, the maximum soldering temperature is quite often well below the above maximum profile.

We reserve the right to make technical changes.

## Recommended reflow soldering profile

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## Reflow soldering profile

The perfect soldering profile for SMT Surface Mount Technology is one the most exiting question in SMT production. But there are more than one correct answer: The diagram of temperature-on-time is related to processing features of solder paste and to maximum load of components.

We have to consider the following parameters:

- Time for pre heating
- Maximum temperature
- Time above melting point
- Time for cooling
- Maximum heating rate
- Maximum cooling rate

We recommend a typical solder profile with associated process limits. With preheating components and board are prepared smoothly for the solder phase. Heating rate is typically  $\leq +3\text{K/s}$ . In parallel the solder paste is 'activated'. The time above melting point of 217°C the paste gets liquid and components and boards begin to connect. The maximum temperature of 245°C to 254°C should stay between 10 and 40 seconds. In the cooling phase at  $\geq -6\text{K/s}$  solder is cured. Board and components cool down while avoiding cold cracks.