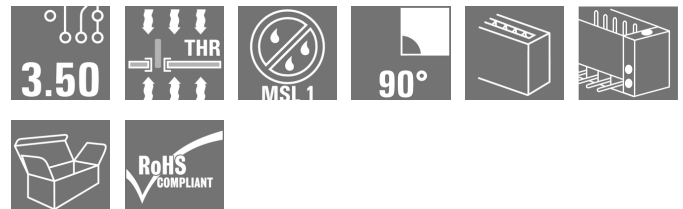


## OMNIMATE Signal - series BL/SL 3.50 SL-SMT 3.50/16/90F 3.2SN BK BX

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 16  
D-32758 Detmold  
Germany  
Fon: +49 5231 14-0  
Fax: +49 5231 14-292083  
www.weidmueller.com

### Product image



Similar to illustration

**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 3.50/16/90F 3.2SN BK BX                                                                                                                           |
| Order No.    | <a href="#">1842220000</a>                                                                                                                               |
| Version      | PCB plug-in connector, male header, Flange, THT/THR solder connection, 3.50 mm, No. of poles: 16, 90°, Solder pin length (l): 3.2 mm, tinned, black, Box |
| GTIN (EAN)   | 4032248353576                                                                                                                                            |
| Qty.         | 24 pc(s).                                                                                                                                                |
| Product data | IEC: 320 V / 15 A<br>UL: 300 V / 10 A                                                                                                                    |
| Packaging    | Box                                                                                                                                                      |

# OMNIMATE Signal - series BL/SL 3.50

## SL-SMT 3.50/16/90F 3.2SN BK BX

**Weidmüller Interface GmbH & Co. KG**  
 Klingenbergstraße 16  
 D-32758 Detmold  
 Germany  
 Fon: +49 5231 14-0  
 Fax: +49 5231 14-292083  
 www.weidmueller.com

## Technical data

### Dimensions and weights

|                          |            |                 |            |
|--------------------------|------------|-----------------|------------|
| Width                    | 63 mm      | Width (inches)  | 2.48 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      | 0.008 g    |

### System specifications

|                                                   |                                     |                                              |                              |
|---------------------------------------------------|-------------------------------------|----------------------------------------------|------------------------------|
| Product family                                    | OMNIMATE Signal - series BL/SL 3.50 | Type of connection                           | Board 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                                      | 16                                  | 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                  | ± 0.20 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                                     | 52.5 mm                      |
| L1 in inches                                      | 2.067 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                           |
| Plugging force/pole, max.                         | 6 N                                 | Pulling force/pole, max.                     | 6 N                          |

### Material data

|                                       |                       |                                       |                       |
|---------------------------------------|-----------------------|---------------------------------------|-----------------------|
| Insulating material                   | LCP GF                | Colour                                | black                 |
| Colour chart (similar)                | RAL 9011              | Insulating material group             | IIla                  |
| CTI                                   | ≥ 175                 | Insulation strength                   | ≥ 10 <sup>8</sup> Ω   |
| Moisture Level (MSL)                  | 1                     | UL 94 flammability rating             | V-0                   |
| GWIT                                  | 930 °C                | GWFI                                  | 960 °C                |
| 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 |

# OMNIMATE Signal - series BL/SL 3.50

## SL-SMT 3.50/16/90F 3.2SN BK BX

**Weidmüller Interface GmbH & Co. KG**  
 Klingenbergstraße 16  
 D-32758 Detmold  
 Germany  
 Fon: +49 5231 14-0  
 Fax: +49 5231 14-292083  
 www.weidmueller.com

## Technical data

### Rated data acc. to CSA

Institute (CSA)



Certificate No. (CSA)

200039-1176845

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

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) 10 A

Rated current (Use group D / UL 1059) 10 A

Reference to approval values

Specifications are  
 maximum values, details -  
 see approval certificate.

### Packing

|           |       |            |        |
|-----------|-------|------------|--------|
| Packaging | Box   | VPE length | 42 mm  |
| VPE width | 70 mm | VPE height | 168 mm |

### 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 |            |             |

## OMNIMATE Signal - series BL/SL 3.50 SL-SMT 3.50/16/90F 3.2SN BK BX

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 16  
D-32758 Detmold  
Germany  
Fon: +49 5231 14-0  
Fax: +49 5231 14-292083  
www.weidmueller.com

## Technical data

### Notes

#### Notes

- Gold-plated contact surfaces on request
- Rated current related to rated cross-section & min. No. of poles.
- Diameter of solder eyelet  $D = 1.4 + 0.1 \text{ mm}$
- Solder eyelet diameter  $D = 1.5 + 0.1 \text{ mm}$ , from 9 poles
- P on drawing = pitch
- 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.
- For additional mechanical support for male connectors with screw flange (...F), we recommend an additional cable gland with fastening screws (sheet metal screw ISO 1481-ST 2.2x4.5 C or ISO 7049-ST 2.2x4.5 C – see Accessories). Cable gland only permitted before soldering.

#### 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.

### 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](#)  
[FL INDUSTR.CONTROLS EN](#)  
[FL MACHINE SAFETY EN](#)  
[FL HEATING ELECTR 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

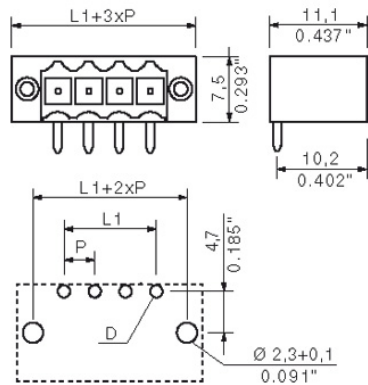
[Download Whitepaper](#)

## OMNIMATE Signal - series BL/SL 3.50 SL-SMT 3.50/16/90F 3.2SN BK BX

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 16  
D-32758 Detmold  
Germany  
Fon: +49 5231 14-0  
Fax: +49 5231 14-292083  
[www.weidmueller.com](http://www.weidmueller.com)

# Drawings

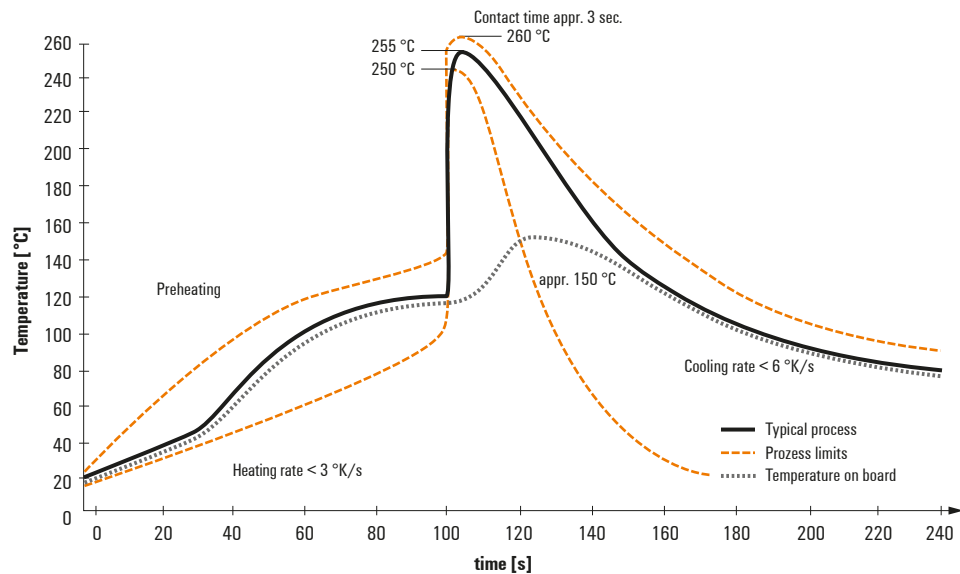
## Dimensional drawing



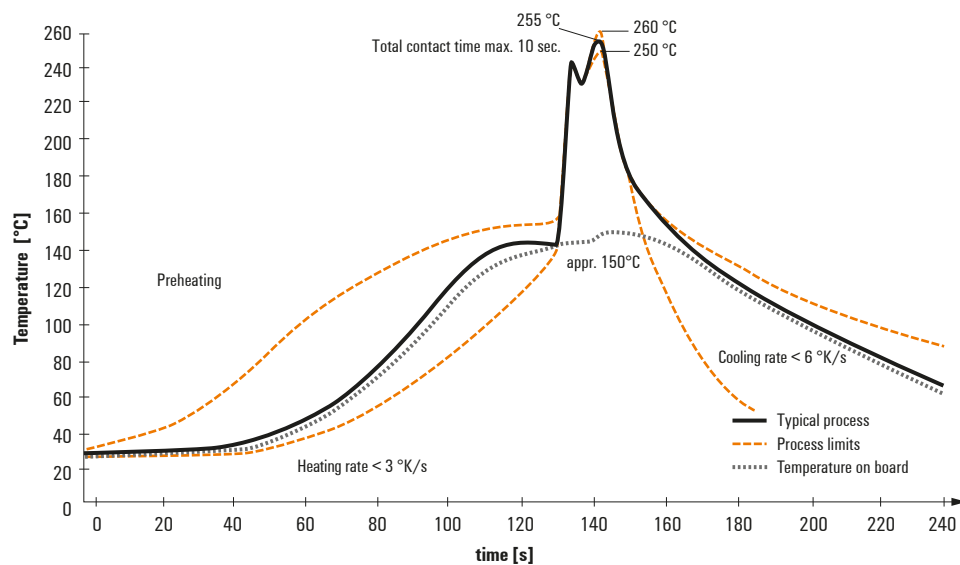
## Recommended wave soldering profiles

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 16  
D-32758 Detmold  
Germany  
Fon: +49 5231 14-0  
Fax: +49 5231 14-292083  
[www.weidmueller.com](http://www.weidmueller.com)

### 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

**Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 16

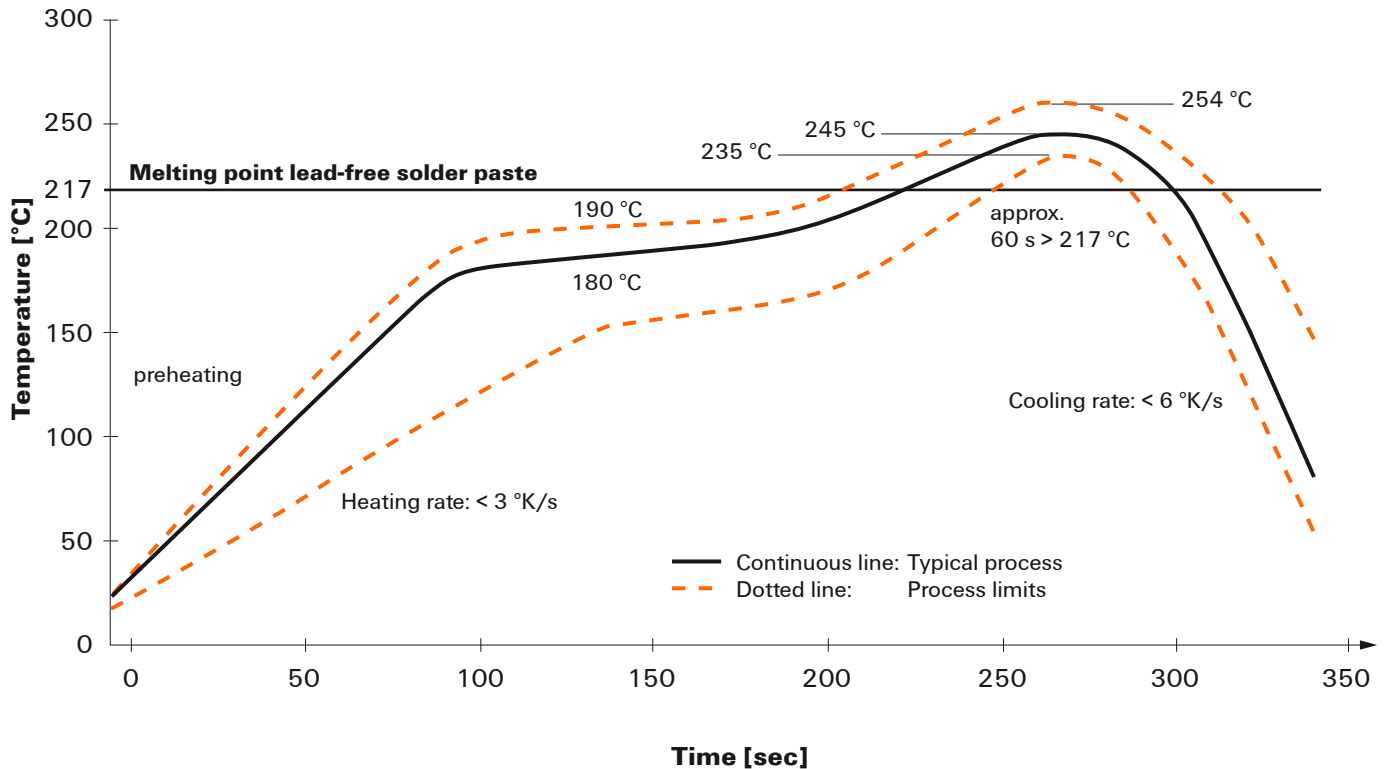
D-32758 Detmold

Germany

Fon: +49 5231 14-0

Fax: +49 5231 14-292083

www.weidmueller.com



## 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.