

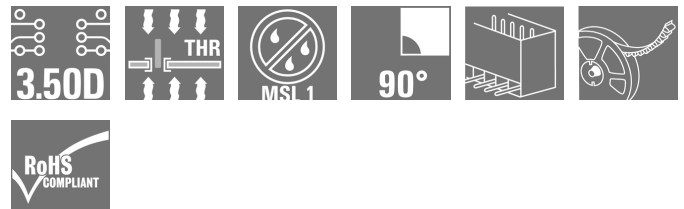
**S2L-SMT 3.50/04/90G 1.5SN BK RL****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com

**Product image**

High-temperature-resistant, straight, 2-tier male connector for all common soldering methods. Optimised for automatic assembly. Packed in box or tape. 3.2 mm solder pin suitable for reflow and wave soldering. These male connectors can be labelled and coded.

**General ordering data**

|              |                                                                                                                                                                  |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Version      | PCB plug-in connector, male header, closed side, THT/THR solder connection, 3.50 mm, Number of poles: 4, 90°, Solder pin length (l): 1.5 mm, tinned, black, Tape |
| Order No.    | <a href="#">1994980000</a>                                                                                                                                       |
| Type         | S2L-SMT 3.50/04/90G 1.5SN BK RL                                                                                                                                  |
| GTIN (EAN)   | 4050118381238                                                                                                                                                    |
| Qty.         | 235 pc(s).                                                                                                                                                       |
| Product data | IEC: 160 V / 10 A<br>UL: 150 V / 10 A                                                                                                                            |
| Packaging    | Tape                                                                                                                                                             |

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**Technical data****Dimensions and weights**

|                          |         |                 |            |
|--------------------------|---------|-----------------|------------|
| Depth                    | 14.2 mm | Depth (inches)  | 0.559 inch |
| Height                   | 14.2 mm | Height (inches) | 0.559 inch |
| Height of lowest version | 10.8 mm | Net weight      | 1.563 g    |
| Width                    | 8.4 mm  | Width (inches)  | 0.331 inch |

**System specifications**

|                                              |                                               |                                                    |                       |
|----------------------------------------------|-----------------------------------------------|----------------------------------------------------|-----------------------|
| Product family                               | OMNIMATE Signal - series B2L/S2L 3.50 - 2-row | 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°                   |
| Number of poles                              | 4                                             | Number of solder pins per pole                     | 1                     |
| Solder pin length (l)                        | 1.5 mm                                        | Solder pin dimensions                              | d = 1.0 mm, Octagonal |
| Solder eyelet hole diameter (D)              | 1.3 mm                                        | Solder eyelet hole diameter tolerance (D) + 0,1 mm |                       |
| Outside diameter of solder pad               | 2.1 mm                                        | Template aperture diameter                         | 1.9 mm                |
| L1 in mm                                     | 3.5 mm                                        | L1 in inches                                       | 0.138 inch            |
| Number of rows                               | 2                                             | Pin series quantity                                | 2                     |
| 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                 |
| Can be coded                                 | Yes                                           | Plugging force/pole, max.                          | 3 N                   |
| Pulling force/pole, max.                     | 6 N                                           |                                                    |                       |

**Material data**

|                                       |                           |                                       |                                  |
|---------------------------------------|---------------------------|---------------------------------------|----------------------------------|
| Insulating material                   | LCP GF                    | Colour                                | black                            |
| Colour chart (similar)                | RAL 9011                  | Insulating material group             | IIIb                             |
| Comparative Tracking Index (CTI)      | ≥ 175                     | Moisture Level (MSL)                  | 1                                |
| UL 94 flammability rating             | V-0                       | Contact material                      | Copper alloy                     |
| Contact surface                       | tinned                    | Layer structure of solder connection  | 2...3 µm Ni / 5...7 µm Sn glossy |
| Layer structure of plug contact       | 2...5 µm Sn / 1...3 µm Ni | 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                    |                                       |                                  |

**Rated data acc. to IEC**

|                                                                           |                        |                                                                       |                  |
|---------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------|------------------|
| tested acc. to standard                                                   | IEC 60664-1, IEC 61984 | Rated current, min. number of poles (Tu=20°C)                         | 10 A             |
| Rated current, max. number of poles (Tu=20°C)                             | 10 A                   | Rated current, min. number of poles (Tu=40°C)                         | 9 A              |
| Rated current, max. number of poles (Tu=40°C)                             | 8.5 A                  | Rated voltage for surge voltage class / pollution degree II/2         | 160 V            |
| Rated voltage for surge voltage class / pollution degree III/2            | 125 V                  | Rated voltage for surge voltage class / pollution degree III/3        | 50 V             |
| Rated impulse voltage for surge voltage class/ pollution degree II/2      | 1.5 kV                 | Rated impulse voltage for surge voltage class/ pollution degree III/2 | 1.5 kV           |
| Rated impulse voltage for surge voltage class/ contamination degree III/3 | 2.5 kV                 | Short-time withstand current resistance                               | 3 x 1s with 77 A |

**Rated data acc. to CSA**

|                                   |       |                                   |       |
|-----------------------------------|-------|-----------------------------------|-------|
| Rated voltage (Use group B / CSA) | 150 V | Rated voltage (Use group C / CSA) | 50 V  |
| Rated voltage (Use group D / CSA) | 150 V | Rated current (Use group B / CSA) | 5 A   |
| Rated current (Use group C / CSA) | 9.5 A | Rated current (Use group D / CSA) | 9.5 A |

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**Technical data****Rated data acc. to UL 1059**

Rated voltage (Use group B / UL 1059) 150 V

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

**Packing**

|                          |         |                             |                               |
|--------------------------|---------|-----------------------------|-------------------------------|
| Packaging                | Tape    | VPE length                  | 40 mm                         |
| VPE width                | 340 mm  | VPE height                  | 340 mm                        |
| Tape depth (T2)          | 15.1 mm | Tape width (W)              | 24 mm                         |
| Tape pocket depth (K0)   | 14.6 mm | Tape pocket height (A0)     | 14.5 mm                       |
| Tape pocket width (B0)   | 13 mm   | Tape pocket separation (P1) | 20 mm                         |
| Tape hole separation (E) | 1.75 mm | Tape pocket separation (F)  | 11.5 mm                       |
| Tape reel diameter Ø (A) | 330 mm  | Surface resistance          | $R_s = 10^9 - 10^{12} \Omega$ |

**Classifications**

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 6.0    | EC002637    | ETIM 7.0    | EC002637    |
| ECLASS 9.0  | 27-44-04-02 | ECLASS 9.1  | 27-44-04-02 |
| ECLASS 10.0 | 27-44-04-02 | ECLASS 11.0 | 27-46-02-01 |

**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>Long term storage of the product with average temperature of 50 °C and average humidity 70%, 36 months</li> </ul>                                                                                                                                                                   |

**Approvals**

|      |         |
|------|---------|
| ROHS | Conform |
|------|---------|

**Downloads**

|                  |                      |
|------------------|----------------------|
| Engineering Data | <a href="#">STEP</a> |
|------------------|----------------------|

## S2L-SMT 3.50/04/90G 1.5SN BK RL

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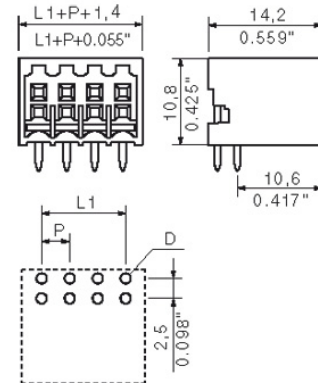
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# Drawings

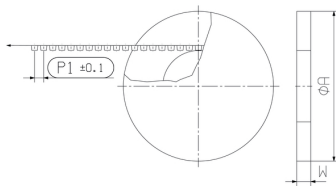
## Product image



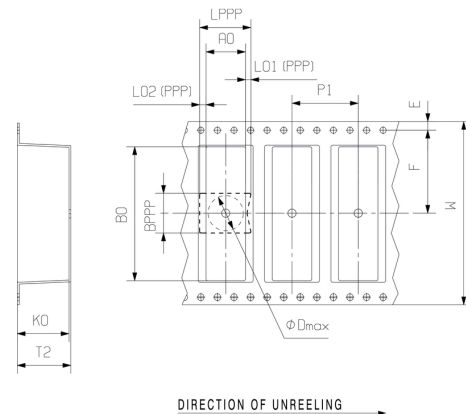
## Dimensional drawing



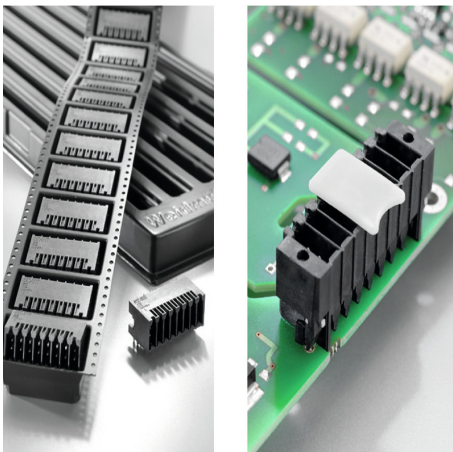
## Dimensional drawing



## Dimensional drawing



## Product benefits



Optimised for the SMT process  
Safe board-to-board connection

## 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  $260\text{ °C}$ . 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.