

**SL-SMT 5.08HC/17/90 3.2SN BK BX**
**Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

[www.weidmueller.com](http://www.weidmueller.com)


High-temperature-resistant, 90° angled, open male header. Packed in box or tape. On tape, with 1.5 mm solder pin, optimised for automatic assembly. 3.2 mm solder pin suitable for reflow and wave soldering. The pin headers provide space for labelling and can be coded. HC = High Current.

**General ordering data**

|              |                                                                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Version      | PCB plug-in connector, male header, open side, THT/THR solder connection, 5.08 mm, Number of poles: 17, 90°, Solder pin length (l): 3.2 mm, tinned, black, Box |
| Order No.    | <a href="#">1780100000</a>                                                                                                                                     |
| Type         | SL-SMT 5.08HC/17/90 3.2SN BK BX                                                                                                                                |
| GTIN (EAN)   | 4032248165421                                                                                                                                                  |
| Qty.         | 20 pc(s).                                                                                                                                                      |
| Product data | IEC: 400 V / 27.5 A<br>UL: 300 V / 18.5 A                                                                                                                      |
| Packaging    | Box                                                                                                                                                            |

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

|                          |          |                 |            |
|--------------------------|----------|-----------------|------------|
| Depth                    | 12 mm    | Depth (inches)  | 0.472 inch |
| Height                   | 11.7 mm  | Height (inches) | 0.461 inch |
| Height of lowest version | 8.5 mm   | Net weight      | 7.75 g     |
| Width                    | 86.36 mm | Width (inches)  | 3.4 inch   |

**System specifications**

|                                                   |                                     |                                 |                  |
|---------------------------------------------------|-------------------------------------|---------------------------------|------------------|
| Product family                                    | OMNIMATE Signal - series BL/SL 5.08 | Type of connection              | Board connection |
| Mounting onto the PCB                             | THT/THR solder connection           | Pitch in mm (P)                 | 5.08 mm          |
| Pitch in inches (P)                               | 0.2 inch                            | Outgoing elbow                  | 90°              |
| Number of poles                                   | 17                                  | Number of solder pins per pole  | 1                |
| Solder pin length (l)                             | 3.2 mm                              | Solder pin length tolerance     | 0 / -0.3 mm      |
| Solder pin dimensions                             | d = 1.2 mm, Octagonal               | Solder eyelet hole diameter (D) | 1.5 mm           |
| Solder eyelet hole diameter tolerance (D)+ 0,1 mm |                                     | L1 in mm                        | 81.28 mm         |
| L1 in inches                                      | 3.2 inch                            | Number of rows                  | 1                |
| Pin series quantity                               | 1                                   | Volume resistance               | ≤5 mΩ            |
| Can be coded                                      | Yes                                 | Plugging force/pole, max.       | 9 N              |
| Pulling force/pole, max.                          | 7 N                                 |                                 |                  |

**Material data**

|                                       |                                |                                       |                                |
|---------------------------------------|--------------------------------|---------------------------------------|--------------------------------|
| Insulating material                   | LCP GF                         | Colour                                | black                          |
| Colour chart (similar)                | RAL 9011                       | Insulating material group             | IIla                           |
| Comparative Tracking Index (CTI)      | ≥ 175                          | Moisture Level (MSL)                  | 1                              |
| UL 94 flammability rating             | V-0                            | Contact material                      | CuMg                           |
| Contact surface                       | tinned                         | Layer structure of solder connection  | 1...3 µm Ni / 2...4 µm Sn matt |
| Layer structure of plug contact       | 1...3 µm Ni / 2...4 µm Sn matt | 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)                         | 27.5 A |
| Rated current, max. number of poles (Tu=20°C)                             | 19 A                   | Rated current, min. number of poles (Tu=40°C)                         | 24 A   |
| Rated current, max. number of poles (Tu=40°C)                             | 16.5 A                 | Rated voltage for surge voltage class / pollution degree II/2         | 400 V  |
| Rated voltage for surge voltage class / pollution degree III/2            | 320 V                  | Rated voltage for surge voltage class / pollution degree III/3        | 250 V  |
| Rated impulse voltage for surge voltage class/ pollution degree II/2      | 4 kV                   | Rated impulse voltage for surge voltage class/ pollution degree III/2 | 4 kV   |
| Rated impulse voltage for surge voltage class/ contamination degree III/3 | 4 kV                   |                                                                       |        |

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## 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) 18.5 A

Rated current (Use group D / CSA) 18.5 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) 18.5 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 45 mm

VPE width 60 mm

VPE height 220 mm

## 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

- Gold-plated contact surfaces on request
- Rated current related to rated cross-section & min. No. of poles.
- Diameter of solder eyelet D = 1.4+0.1mm
- Solder eyelet diameter D = 1.5 + 0.1 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.
- Long term storage of the product with average temperature of 50 °C and average humidity 70%, 36 months

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## Technical data

### Approvals

Approvals



|                       |         |
|-----------------------|---------|
| ROHS                  | Conform |
| UL File Number Search | E60693  |

### Downloads

|                                             |                                                 |
|---------------------------------------------|-------------------------------------------------|
| Approval/Certificate/Document of Conformity | <a href="#">Declaration of the Manufacturer</a> |
| Engineering Data                            | <a href="#">STEP</a>                            |
| Engineering Data                            | <a href="#">EPLAN, WSCAD</a>                    |

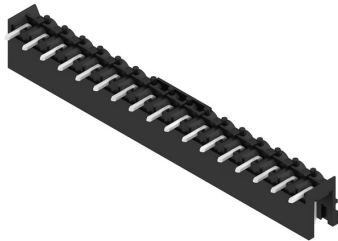
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# Drawings

## Product image



## Dimensional drawing



## Product benefits



Safe power transmission  
Proven properties

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Dimensions without tolerances are no check dimensions

The English version is binding



hole pattern



paste - free - area

D = 1.4/0.055" or 1.5/0.059" (REFLOW SOLDERING)  
RECOMMENDATION FOR AUTOMATIC ASSEMBLY  
(1.4mm FOR n=2...8 / 1.5mm for n=9...24)

n = Polzahl / no of poles

P = Raster / pitch

For the mounting of PCBs, it should be noted that the rated data relates only to the PCB components alone.

The necessary creepage and clearance paths must be observed in connection with the respective applicant in accordance to IEC 664 / VDE 0110.

The current-carrying capacity and pitch tolerance is to be determined according to DIN IEC 326 part 3 very fine.

Weidmüller PCB components are tested to the DIN EN 61984 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: SL-SMT 5.08HC/04/90

|    |           |       |          |
|----|-----------|-------|----------|
| 24 | 116.84    | 4.600 | +/- 0.2  |
| 23 | 111.76    | 4.400 |          |
| 22 | 106.68    | 4.200 |          |
| 21 | 101.60    | 4.000 |          |
| 20 | 96.52     | 3.800 | +/- 0.15 |
| 19 | 91.44     | 3.600 |          |
| 18 | 86.36     | 3.400 |          |
| 17 | 81.28     | 3.200 |          |
| 16 | 76.20     | 3.000 |          |
| 15 | 71.12     | 2.800 |          |
| 14 | 66.04     | 2.600 |          |
| 13 | 60.96     | 2.400 |          |
| 12 | 55.88     | 2.200 | +/- 0.1  |
| 11 | 50.80     | 2.000 |          |
| 10 | 45.72     | 1.800 |          |
| 9  | 40.64     | 1.600 |          |
| 8  | 35.56     | 1.400 |          |
| 7  | 30.48     | 1.200 |          |
| 6  | 25.40     | 1.000 |          |
| 5  | 20.32     | 0.800 |          |
| 4  | 15.24     | 0.600 | +/- 0.1  |
| 3  | 10.16     | 0.400 |          |
| 2  | 5.08      | 0.200 |          |
| 1  | tolerance |       |          |

|     |           |
|-----|-----------|
| 4.5 | 0.1/-0.3  |
| 3.2 | 0.1/-0.3  |
| 2.1 | 0.1/-0.3  |
| 1.5 | -0.3      |
| 1   | tolerance |

|             |         |           |              |
|-------------|---------|-----------|--------------|
| no of poles | L1 [mm] | L1 [inch] | tolerance L1 |
|-------------|---------|-----------|--------------|

|               |                |                               |          |                                                               |                           |            |             |           |
|---------------|----------------|-------------------------------|----------|---------------------------------------------------------------|---------------------------|------------|-------------|-----------|
|               | DIN ISO 2768-m | 106339/4<br>30.07.18 HERTEL_S | 00       |                                                               | Cat.no.: .                | 2 33262 31 | Drawing no. | Issue no. |
|               | Modification   | Date                          | Name     |                                                               |                           |            |             |           |
|               | Drawn          | 29.11.2007                    | HELIS_MA | <b>SL-SMT 5.08HC/.../90...</b><br>STIFTELEISTE<br>MALE HEADER | Product file: SL-SMT 5.08 | 7280       |             |           |
|               | Responsible    |                               | HERTEL_S |                                                               |                           |            |             |           |
|               | Checked        | 01.08.2018                    | KOCH_JG  |                                                               |                           |            |             |           |
| Supersedes: . | Approved       |                               | LANG_T   |                                                               |                           |            |             |           |

## 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.