

**S2CD-THR 3.50/20/90G 3.2SN BK BX**
**Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com

**Product image**


Similar to illustration

**The new benchmark for component density: the virtual 0.875mm pitch - for 1mm² I/O connections**

The only 4-row double level male connectors for standard IP20 sensor interfaces with 3.5 pitch

The S2L in a double pack - a standard has surpassed itself:

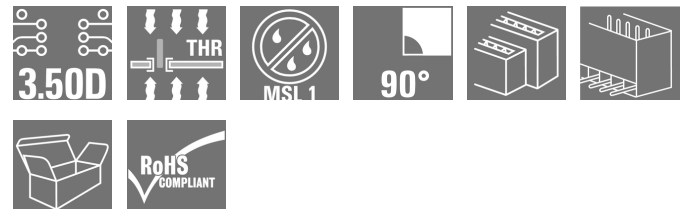
- Each 3.5mm wide, 4 I/O contacts for 1mm² connection cross-section
- Force-fit enclosure geometry guarantees maximum stability
- Solder flange eliminates the need for a screw fastening

Less is more - basic advantages for your applications:

- 75% space savings on the circuit board
- Solder flange reduces process costs
- Less mechanical load on the soldering points
- More space for displays in the front panel, for example

A "small" contribution to greater competitiveness:

additional features in the same installation space or a more compact device with the same range of functions.


**General ordering data**

|              |                                                                                                                                                                  |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Version      | PCB plug-in connector, male header, closed side, THT/THR solder connection, 3.50 mm, Number of poles: 20, 90°, Solder pin length (l): 3.2 mm, tinned, black, Box |
| Order No.    | <a href="#">1357830000</a>                                                                                                                                       |
| Type         | S2CD-THR 3.50/20/90G 3.2SN BK BX                                                                                                                                 |
| GTIN (EAN)   | 4050118160482                                                                                                                                                    |
| Qty.         | 20 pc(s).                                                                                                                                                        |
| Product data | IEC: 200 V / 7.9 A<br>UL: 150 V / 9.5 A                                                                                                                          |
| Packaging    | Box                                                                                                                                                              |

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

|                          |         |                 |            |
|--------------------------|---------|-----------------|------------|
| Depth                    | 24.4 mm | Depth (inches)  | 0.961 inch |
| Height                   | 35 mm   | Height (inches) | 1.378 inch |
| Height of lowest version | 31.8 mm | Net weight      | 9.722 g    |
| Width                    | 18.9 mm | Width (inches)  | 0.744 inch |

**System specifications**

|                                            |                                               |                                                    |                        |
|--------------------------------------------|-----------------------------------------------|----------------------------------------------------|------------------------|
| Product family                             | OMNIMATE Signal - series B2C/S2C 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                            | 20                                            | Number of solder pins per pole                     | 1                      |
| Solder pin length (l)                      | 3.2 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                                   | 31.5 mm                                       | L1 in inches                                       | 1.24 inch              |
| Pin series quantity                        | 2                                             | Touch-safe protection acc. to DIN VDE 57 106       | Safe from finger touch |
| Touch-safe protection acc. to DIN VDE 0470 | IP 20                                         | Can be coded                                       | Yes                    |

**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  | 1...3 µm Ni / 2...5 µm Sn matt |
| 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.           | 120 °C                    | Temperature range, installation, min. | -40 °C                         |
| Temperature range, installation, max. | 120 °C                    |                                       |                                |

**Rated data acc. to IEC**

|                                                                           |                        |                                                                       |                  |
|---------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------|------------------|
| tested acc. to standard                                                   | IEC 60664-1, IEC 61984 | Rated current, min. number of poles (Tu=20°C)                         | 7.9 A            |
| Rated current, max. number of poles (Tu=20°C)                             | 5 A                    | Rated current, min. number of poles (Tu=40°C)                         | 6.8 A            |
| Rated current, max. number of poles (Tu=40°C)                             | 5 A                    | Rated voltage for surge voltage class / pollution degree II/2         | 200 V            |
| Rated voltage for surge voltage class / pollution degree III/2            | 160 V                  | Rated voltage for surge voltage class / pollution degree III/3        | 100 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 | 1.5 kV                 | Short-time withstand current resistance                               | 3 x 1s with 80 A |

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

Institute (CSA)



Certificate No. (CSA)

200039-1121690

Rated voltage (Use group B / CSA) 50 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

Reference to approval values

Specifications are maximum values, details - see approval certificate.

**Rated data acc. to UL 1059**

Institute (cURus)



Certificate No. (cURus)

E60693

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

Rated voltage (Use group C / UL 1059) 50 V

Rated voltage (Use group D / UL 1059) 50 V

Rated current (Use group B / UL 1059) 9.5 A

Rated current (Use group C / UL 1059) 9.5 A

Rated current (Use group D / UL 1059) 9.5 A

Reference to approval values

Specifications are maximum values, details - see approval certificate.

**Packing**

Packaging Box

VPE length 45 mm

VPE width 80 mm

VPE height 150 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.
- Spacing between rows: see hole layout
- 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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[www.weidmueller.com](http://www.weidmueller.com)**Technical data****Approvals**

Approvals



ROHS Conform

UL File Number Search E60693

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

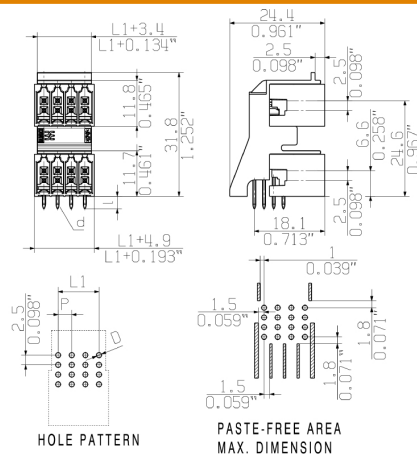
Engineering Data

[STEP](#)

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**Drawings**
**Dimensional drawing**


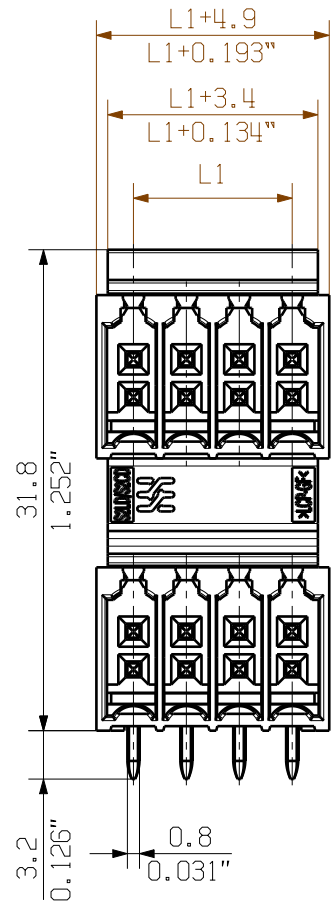
WEITERGABE SOWIE VERVIELFÄLTIGUNG DIESER DOKUMENTS, VERWERTUNG UND MITTEILUNG SEINER INHALTS SIND VERBOTEN, SOWEIT NICHT AUSDRUECKLICH GESTATTET.  
ZUWIDERHANDLUNGEN VERPFLICHTEN ZU SCHADENERSATZ. ALLE RECHTE FUER DEN FALL DER PATENT-, GEBRAUCHSMUSTER- ODER GESCHMACKSMUSTERRECHTUNG VORBEHALTEN.  
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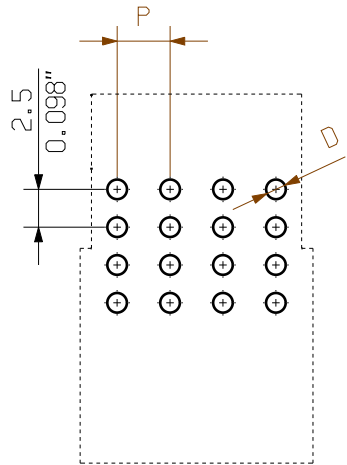
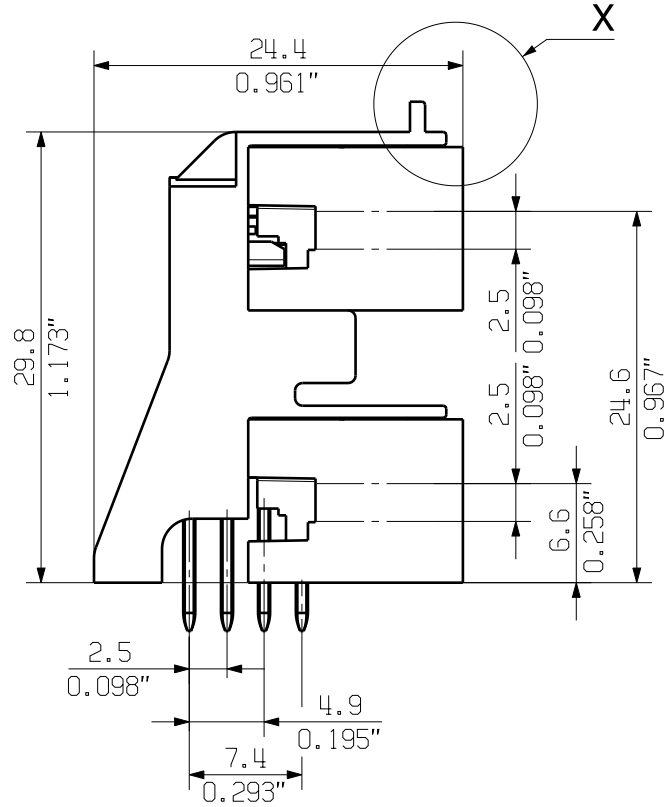
MASSE OHNE TOLERANZ SIND KEINE PRUEFMASSE  
DIMS. WITHOUT TOLERANCE ARE NOT CONTROL DIMS.

ALLGEMEINGUELTIGE KUNDENZEICHNUNG, AKTUELLER STAND NUR AUF ANFRAGE  
GENERAL CUSTOMER DRAWING, TOPICAL VERSION ONLY IF REQUIRED

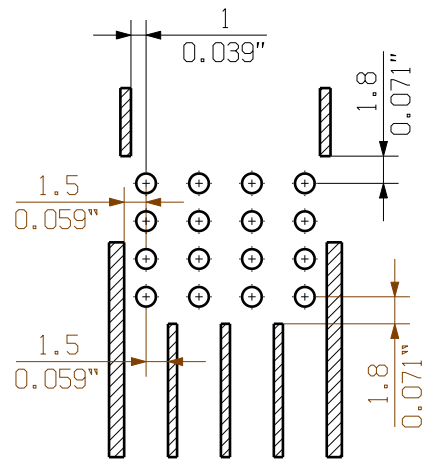
DIE DEUTSCHE VERSION IST VERBINDLICH  
THE GERMAN VERSION IS BINDING



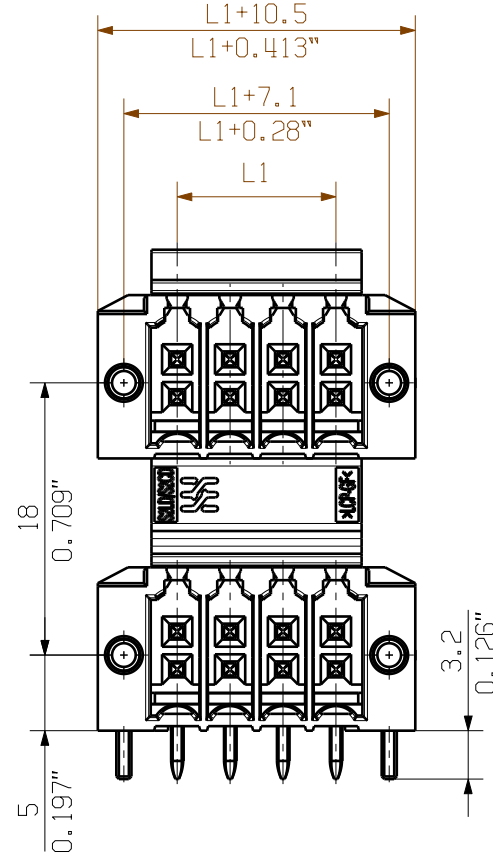
SHOWN: S2CD-THR 3.50/16/90G



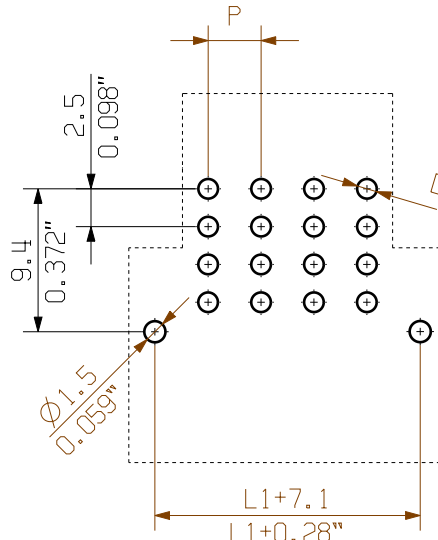
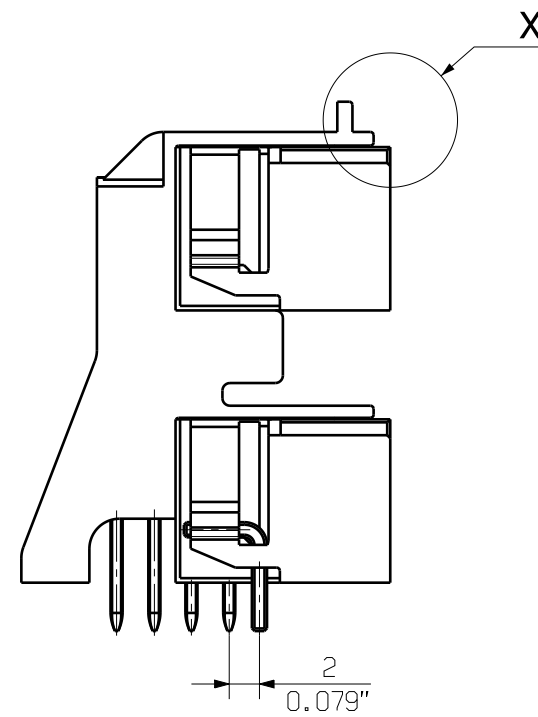
HOLE PATTERN



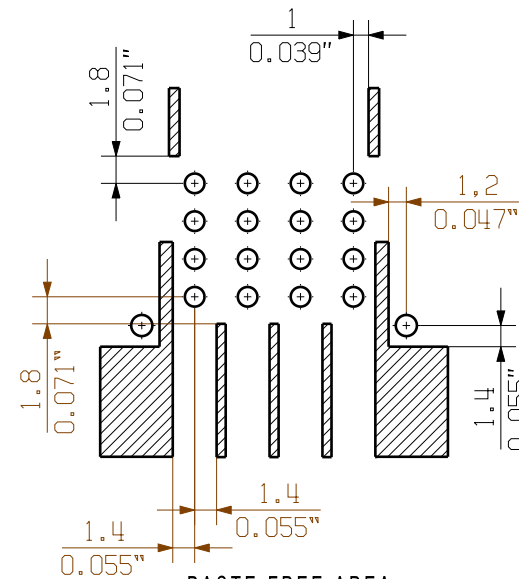
PASTE FREE AREA  
MAX. DIMENSION



SHOWN: S2CD-THR 3.50/16/90LF

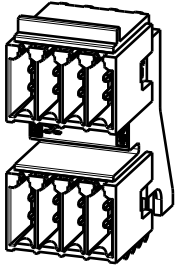


HOLE PATTERN

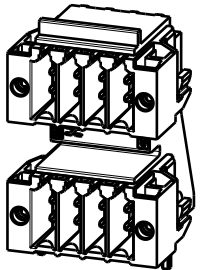


PASTE FREE AREA  
MAX. DIMENSION

M 1/1  
S2CD-THR 3.50/16/90G



M 1/1  
S2CD-THR 3.50/16/90LF



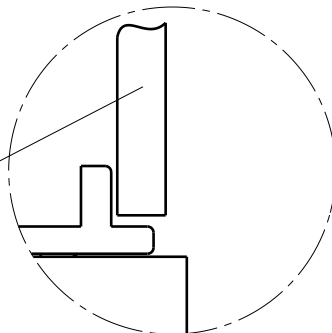
For the mounting of PCBs, it should be noted that the rated data relates only to the PCB components alone.  
The necessary creepage and clearance paths must be observed in connection with the respective applicant in accordance to IEC 664 / VDE 0110.  
The current-carrying capacity and pitch tolerance 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.

|    |                  |                            |
|----|------------------|----------------------------|
| 36 | 59.5             | 2.343                      |
| 32 | 52.5             | 2.067                      |
| 28 | 45.5             | 1.791                      |
| 24 | 38.5             | 1.516                      |
| 20 | 31.5             | 1.240                      |
| 16 | 24.5             | 0.965                      |
| 12 | 17.5             | 0.689                      |
| 8  | 10.5             | 0.413                      |
| n  | POLZAHL<br>POLES | L1<br>[mm]<br>L1<br>[inch] |

P = 3.50 RASTER  
PITCH  
D = Ø1.3 +0.1  
0.051  
d = 0.8x0.8  
0.031"x0.031"

ABSTUETZUNG ERFORDERLICH  
SUPPORT NECESSARY  
BEI ALLEN VERSIONEN  
FOR ALL VERSIONS



X 4/1  
ACHTUNG  
ATTENTION

|                                      |  |                                  |            |                                   |  |
|--------------------------------------|--|----------------------------------|------------|-----------------------------------|--|
| GENERAL TOLERANCE:<br>DIN ISO 2768-m |  | 74586/5<br>01.07.14 TIELKER_S 01 |            | CAT.NO.: .                        |  |
| RoHS<br>COMPLIANT                    |  | MODIFICATION                     |            | Weidmüller                        |  |
| DRAWN                                |  | DATE                             | NAME       | C 55770 01                        |  |
| RESPONSIBLE                          |  | 31.01.2013                       | FRIELING_L | DRAWING NO. SHEET 01 OF 01 SHEETS |  |
| CHECKED                              |  | 07.07.2014                       | HELI_S_MA  | S2CD-THR 3.50/.../90              |  |
| APPROVED                             |  |                                  | HANKE_D    | STIFTELEISTE<br>MALE HEADER       |  |
| SCALE: 2/1<br>SUPERSEDES: .          |  | PRODUCT FILE: B2CF/S2C           |            | 7400                              |  |

## Recommended wave soldering profiles

**Weidmüller Interface GmbH & Co. KG**  
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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.