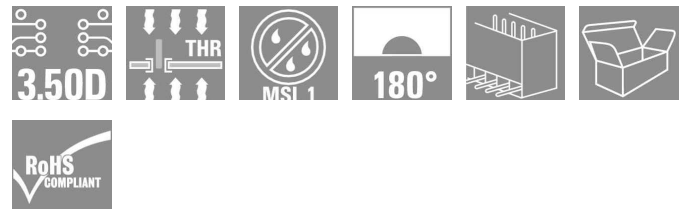


**OMNIMATE Signal - series B2L/S2L 3.50 - 2-row  
S2L-SMT 3.50/12/180G 3.5SN BK BX**

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



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.

- 50 V (IEC) / 150 V (UL)
- 10 A (IEC) / 10 A (UL)

**General ordering data**

Type	S2L-SMT 3.50/12/180G 3.5SN BK BX
Order No.	<a href="#">1794560000</a>
Version	PCB plug-in connector, male header, closed side, Reflow solder connection, 3.50 mm, No. of poles: 12, 180°, Solder pin length (l): 3.5 mm, tinned, Black, Box
GTIN (EAN)	4032248231744
Qty.	50 pc(s).
Product data	IEC: 160 V / 10 A UL: 150 V / 10 A
Packaging	Box

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

Net weight 3.5 g

**System parameters**

Product family		Mounting onto the PCB	
OMNIMATE Signal - series B2L/S2L 3.50 - 2-row		Reflow solder connection	
Outgoing elbow	180°	Pitch in mm (P)	3.5 mm
Pitch in inches (P)	0.138 inch	No. of poles	12
Solder pin length (l)	3.5 mm	Pin dimensions	d = 1.0 mm, Octagonal
Can be coded	Yes	Number of solder pins per pole	1
Solder eyelet hole diameter (D)	1.3 mm	Solder eyelet hole diameter tolerance (D)	+ 0,1 mm
L1 in mm	17.5 mm	L1 in inches	0.689 inch
Touch-safe protection acc. to DIN VDE 0470	IP 10	Touch-safe protection acc. to DIN VDE 57 106	Safe from back-of-hand touch

**Material data**

Insulating material	LCP GF	Colour	Black
Insulating material group	IIIb	UL 94 flammability rating	V-0
CTI	≥ 175	Contact material	Cu-Leg
Contact surface	tinned	Operating temperature, min.	-50 °C
Operating temperature, max.	100 °C	Temperature range, installation, min.	-30 °C
Temperature range, installation, max.	100 °C	Max. relative humidity during storage	80 %


**DIN IEC rating data**

Rated current, min. no. of poles (Tu=20°C)	10 A	Rated current, max. no. of poles (Tu=20°C)	10 A
Rated current, number of poles (Tu=40°C), min	9 A	Rated current, number of poles (Tu=40°C), max.	8.5 A
Rated voltage for surge voltage class / pollution degree III/3	50 V	Rated impulse voltage for surge voltage class/ contamination degree III/3	2.5 kV
Rated voltage for surge voltage class / pollution degree III/2	125 V	Rated impulse voltage for surge voltage class/ pollution degree III/2	1.5 kV
Rated voltage for surge voltage class / pollution degree II/2	160 V	Rated impulse voltage for surge voltage class/ pollution degree II/2	1.5 kV
Short-time withstand current resistance	3 x 1s with 77 A		

**CSA rating data**

Institute (CSA)		Rated voltage (Use group B)	50 V
Rated current (use group B)	5 A		

**UL 1059 rating data**

Institute (UR)		Rated voltage (use group B)	150 V
Rated current (use group B)	10 A	Rated voltage (use group C)	50 V
Rated current (use group C)	10 A		

**Data sheet**

**OMNIMATE Signal - series B2L/S2L 3.50 - 2-row  
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**Technical data**

**Classifications**

UNSPSC	30-21-18-10	eClass 5.1	27-26-07-01
eClass 6.2	27-26-07-04	eClass 7.1	27-44-04-02

**Notes**

- Notes
- Additional colours on request
  - Gold-plated contact surfaces on request
  - Spacing between rows: see hole layout
  - Rated current related to rated cross-section & min. No. of 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.

**Approvals**

Approvals



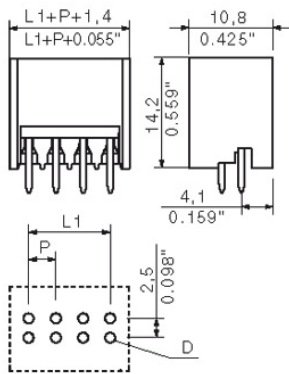
ROHS Conform

**Data sheet**

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**Drawings**



**OMNIMATE Signal - series B2L/S2L 3.50 - 2-row  
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**Mating connector (fully pluggable)**
**B2L 3.50**

**Component density redefined: the future standard for signal connection**

Maximum connection density in the smallest of spaces - the 2-row B2L raises the bar higher for standard sensor cables up to 1mm<sup>2</sup> and bridges the gap between insufficient space and more functions.

The result is a connecting solution for standard industrial cables with 1.75 pitch - 30% smaller than an equivalent solution with 2.5 pitch and with 140% the robustness of 3.5 pitch

Dimensions: double the connection density with 3.5mm pitch size

Connection system: tried and tested maintenance-free Weidmüller tension clamp connection

Connection data / Performance:

- 0.20 - 1.0mm<sup>2</sup> (IEC) / 28 - 18 AWG (UL)
- 80 V / 10 A (IEC) / 150 V / 10 A (UL)
- No. of poles: 4 to 36

The basic application advantages:

Efficient - maximum component density on the PCB  
 Suitable for industrial use - minimum dimensions, maximum robustness

Process-optimised - automatic configuration and reflow solders, rapid connection

User-friendly - patented release lever for the easy release of larger numbers of poles

Application-oriented: easy labelling and reliable coding despite compact dimensions

Miniaturisation is more than just a larger number of functions within a small space:

Every reduction in size decreases space requirements and the overall system costs less for the end customer.

Weidmüller fulfils a growing demand in the engineering and industrial automation sectors.

**General ordering data**

Type	Order No.	Version	GTIN (EAN)	Qty.	Product data	Packaging
B2L 3.50/12/180 SN BK BX	<a href="#">1727670000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248037865	50 pc(s).	IEC: 200 V / 10.3 A / 0.2 - 1 mm <sup>2</sup> UL: 300 V / 10 A / AWG 28 - AWG 16	Box
B2L 3.50/12/180 SN DKG BX PRT	<a href="#">1789580000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248210527	50 pc(s).	IEC: 200 V / 10.3 A / 0.2 - 1 mm <sup>2</sup> UL: 300 V / 10 A / AWG 28 - AWG 16	Box

**OMNIMATE Signal - series B2L/S2L 3.50 - 2-row  
S2L-SMT 3.50/12/180G 3.5SN BK BX**

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**Mating connector (fully pluggable)**

B2L 3.50/12/180 SN BK BX PRT	<a href="#">1912040000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248540358 50 pc(s).	IEC: 200 V / 10.3 A / 0.2 - 1 mm <sup>2</sup> UL: 300 V / 10 A / AWG 28 - AWG 16	Box
B2L 3.50/12/180 SN OR BX	<a href="#">1727590000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248037728 50 pc(s).	IEC: 200 V / 10.3 A / 0.2 - 1 mm <sup>2</sup> UL: 300 V / 10 A / AWG 28 - AWG 16	Box
B2L 3.50/12/180 SN OR BX PRT	<a href="#">1866780000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248437528 20 pc(s).	IEC: 200 V / 10.3 A / 0.2 - 1 mm <sup>2</sup> UL: 300 V / 10 A / AWG 28 - AWG 16	Box
B2L 3.50/12/180 SN BK BX PRT	<a href="#">1024250000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248743698 50 pc(s).	IEC: 200 V / 10.3 A / 0.2 - 1 mm <sup>2</sup> UL: 300 V / 10 A / AWG 28 - AWG 16	Box

**B2L 3.50 QV SN**

Female connector with integral cross-connection and clear printing for uninterrupted relaying of potential at full current-carrying capacity with the maximum cable cross-section. The cross-connection is positioned vertically between the poles of rows directly on top of each other. Conductor connection with tension clamp system with straight outlet and 3.5 mm pitch. Flange and release lever available. Packed in cardboard box.

- 0.20 - 1.0mm<sup>2</sup> (IEC) / 28 - 18 AWG (UL)
- 80 V (IEC) / 150 V (UL)
- 10 A (IEC) / 10 A (UL)

**General ordering data**

Type	Order No.	Version	GTIN (EAN)	Qty.	Product data	Packaging
B2L 3.50/12/180QV6 SN BK BX	<a href="#">1944620000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248619559 50 pc(s).		IEC: 200 V / 10.6 A / 0.2 - 1 mm <sup>2</sup> UL: 150 V / 7 A / AWG 28 - AWG 18	Box

**OMNIMATE Signal - series B2L/S2L 3.50 - 2-row  
S2L-SMT 3.50/12/180G 3.5SN BK BX**

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www.weidmueller.com

**Mating connector (conditionally pluggable)**
**B2L 3.50LH**


Female connectors with tension clamp connection system enable quick and simple wiring. These female header can be mounted side by side and therefore have a high connection density. The release lever simplifies the separation of the connection in confined spaces. The socket blocks provide space for labelling and can be coded.

- 0.20 - 1.0mm<sup>2</sup> (IEC) / 28 - 18 AWG (UL)
- 80 V (IEC) / 150 V (UL)
- 10 A (IEC) / 10 A (UL)

**General ordering data**

Type	Order No.	Version	GTIN (EAN)	Qty.	Product data	Packaging
B2L 3.50/12/180LH SN BK BX	<a href="#">1748520000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248038237	50 pc(s).	IEC: 250 V / 10.3 A / 0.2 - 1 mm <sup>2</sup> UL: 300 V / 10 A / AWG 28 - AWG 16	Box
B2L 3.50/12/180LH SN OR BX	<a href="#">1748360000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248038145	50 pc(s).	IEC: 250 V / 10.3 A / 0.2 - 1 mm <sup>2</sup> UL: 300 V / 10 A / AWG 28 - AWG 16	Box

**B2L 3.50F QV SN**


Female connector with integral cross-connection and clear printing for uninterrupted relaying of potential at full current-carrying capacity with the maximum cable cross-section. The cross-connection is positioned vertically between the poles of rows directly on top of each other. Conductor connection with tension clamp system with straight outlet and 3.5 mm pitch. Flange and release lever available. Packed in cardboard box.

- 0.20 - 1.0mm<sup>2</sup> (IEC) / 28 - 18 AWG (UL)
- 80 V (IEC) / 150 V (UL)
- 10 A (IEC) / 10 A (UL)

**General ordering data**

Type	Order No.	Version	GTIN (EAN)	Qty.	Product data	Packaging
B2L 3.50/12/180FQV6 SN BK BX	<a href="#">1944700000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248619634	50 pc(s).	IEC: 200 V / 10.6 A / 0.2 - 1 mm <sup>2</sup> UL: 150 V / 7 A / AWG 28 - AWG 18	Box

**OMNIMATE Signal - series B2L/S2L 3.50 - 2-row  
S2L-SMT 3.50/12/180G 3.5SN BK BX**

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Klingenbergstraße 16  
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Germany  
Fon: +49 5231 14-0  
Fax: +49 5231 14-292083  
www.weidmueller.com

**Mating connector (conditionally pluggable)**
**B2L 3.50F**

**Component density redefined: the future standard for signal connection**

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Dimensions: double the connection density with 3.5mm pitch size

Connection system: tried and tested maintenance-free Weidmüller tension clamp connection

Connection data / Performance:

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**General ordering data**

Type	Order No.	Version	GTIN (EAN)	Qty.	Product data	Packaging
B2L 3.50/12/180F SN BK BX	<a href="#">1748200000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248038039	50 pc(s).	IEC: 250 V / 10.3 A / 0.2 - 1 mm <sup>2</sup> UL: 300 V / 10 A / AWG 28 - AWG 16	Box
B2L 3.50/12/180F SN OR BX	<a href="#">1748040000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248037957	50 pc(s).	IEC: 250 V / 10.3 A / 0.2 - 1 mm <sup>2</sup> UL: 300 V / 10 A / AWG 28 - AWG 16	Box



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**Mating connector (conditionally pluggable)**
**B2L 3.50LH QV SN**


Female connector with integral cross-connection and clear printing for uninterrupted relaying of potential at full current-carrying capacity with the maximum cable cross-section. The cross-connection is positioned vertically between the poles of rows directly on top of each other. Conductor connection with tension clamp system with straight outlet and 3.5 mm pitch. Flange and release lever available. Packed in cardboard box.

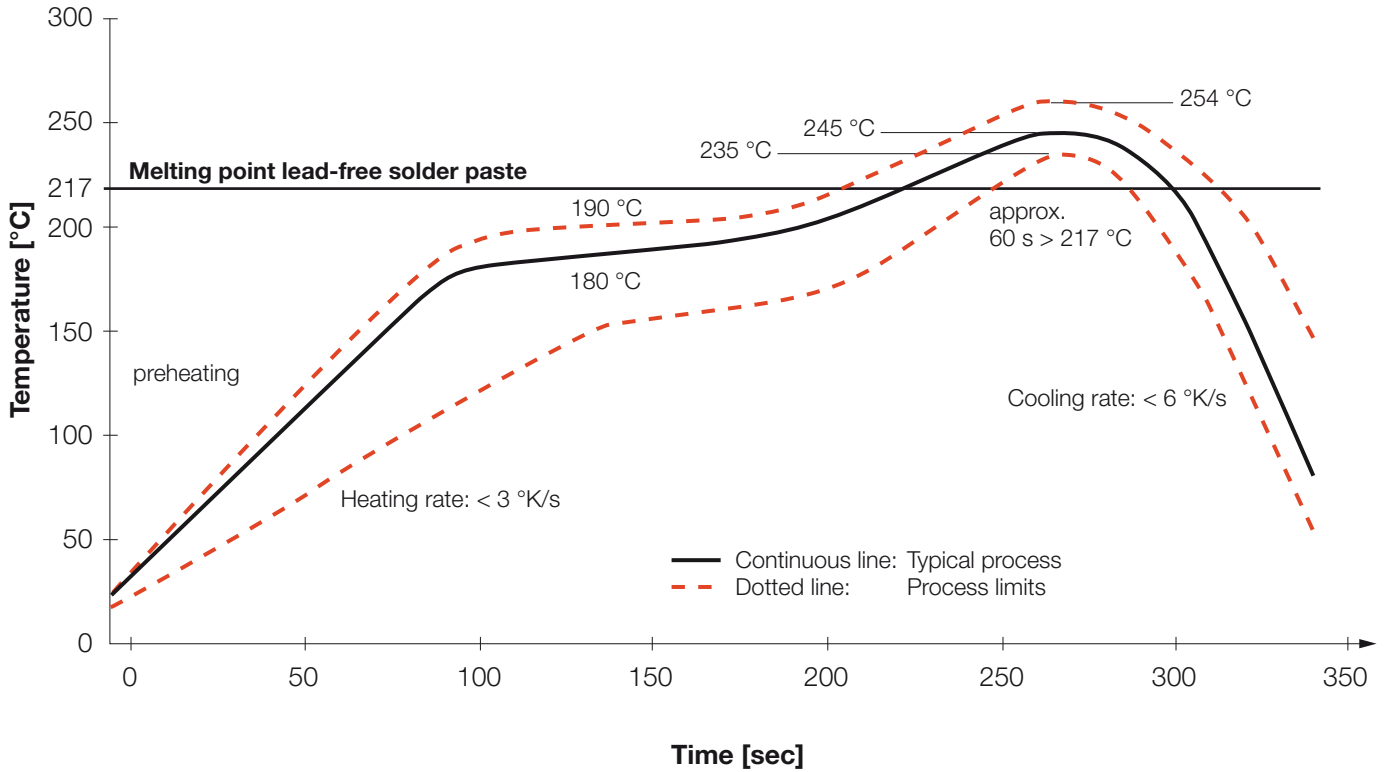
- 0.20 - 1.0mm<sup>2</sup> (IEC) / 28 - 18 AWG (UL)
- 80 V (IEC) / 150 V (UL)
- 10 A (IEC) / 10 A (UL)

**General ordering data**

Type	Order No.	Version	GTIN (EAN)	Qty.	Product data	Packaging
B2L	<a href="#">1944780000</a>	PCB plug-in connector, female plug, 3.50 mm, No. of poles: 12, 180°, Tension clamp connection, Clamping range, rated connection, max.: 1 mm <sup>2</sup> , Box	4032248619719	50 pc(s).	IEC: 200 V / 10.6 A / 0.2 - 1 mm <sup>2</sup> UL: 150 V / 7 A / AWG 28 - AWG 18	Box

## 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.

