

## SL 3.50/12/90F 3.2SN OR BX

**Weidmüller Interface GmbH & Co. KG**

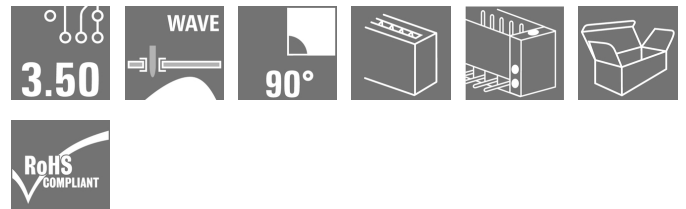
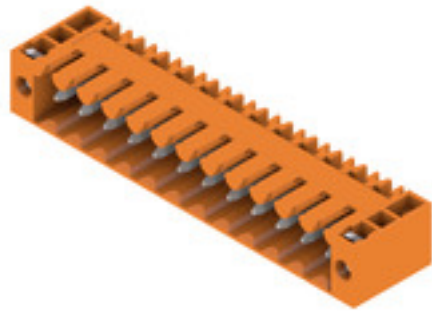
Klingenbergstraße 26

D-32758 Detmold

Germany

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

### Product image



Pin headers for wave soldering in 3.50 mm pitch

- Plugging direction is parallel (90°), straight 180° or angled (135°) to the PCB
- Housing variant: screw flange (F)
- Packed in a cardboard box (BX)
- Pin header can be coded

### General ordering data

Version	PCB plug-in connector, male header, Flange, THT solder connection, 3.50 mm, Number of poles: 12, 90°, Solder pin length (l): 3.2 mm, tinned, orange, Box
Order No.	<a href="#">1607140000</a>
Type	SL 3.50/12/90F 3.2SN OR BX
GTIN (EAN)	4008190092375
Qty.	50 pc(s).
Product data	IEC: / 17 A UL: 300 V / 10 A
Packaging	Box

Creation date January 26, 2022 4:27:36 PM CET

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## Technical data

## Dimensions and weights

Depth	11.1 mm	Depth (inches)	0.437 inch
Height	10.7 mm	Height (inches)	0.421 inch
Height of lowest version	7.5 mm	Width	49 mm
Width (inches)	1.929 inch	Net weight	3.61 g

## System specifications

Product family	OMNIMATE Signal - series BL/SL 3.50		
Type of connection	Board connection		
Mounting onto the PCB	THT solder connection		
Pitch in mm (P)	3.5 mm		
Pitch in inches (P)	0.138 inch		
Outgoing elbow	90°		
Number of poles	12		
Number of solder pins per pole	1		
Solder pin length (l)	3.2 mm		
Solder pin length tolerance	+0.1 / -0.3 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		
L1 in mm	38.5 mm		
L1 in inches	1.516 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	6.00 mΩ		
Can be coded	Yes		
Plugging force/pole, max.	10 N		
Pulling force/pole, max.	10 N		
Tightening torque	Torque type	Mounting screw, PCB	
	Usage information	Tightening torque	min. 0.1 Nm max. 0.15 Nm
		Recommended screw	Part number <a href="#">PTSC KA 2.2X4.5 WN1412</a>

## Material data

Insulating material	PBT	Colour	orange
Colour chart (similar)	RAL 2000	Insulating material group	IIIa
Comparative Tracking Index (CTI)	≥ 200	UL 94 flammability rating	V-0
Contact base material	CuSn	Contact material	CuSn
Contact surface	tinned	Layer structure of solder connection	2...4 µm Ni / 5...8 µm Sn glossy
Layer structure of plug contact	2...4 undefined Ni / 5...8 undefined Sn glossy	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		

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Catalogue status 14.01.2022 / We reserve the right to make technical changes.

2

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## Technical data


### Rated data acc. to IEC

tested acc. to standard	IEC 60664-1, IEC 61984	Rated current, min. number of poles (Tu=20°C)	17 A
Rated current, max. number of poles (Tu=20°C)	12 A	Rated current, min. number of poles (Tu=40°C)	14.5 A
Rated current, max. number of poles (Tu=40°C)	10 A		

### Rated data acc. to CSA

Institute (CSA)		Certificate No. (CSA)	154685-1318353
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	140 mm
VPE width	104 mm	VPE height	40 mm

### Classifications

ETIM 6.0	EC002637	ETIM 7.0	EC002637
ETIM 8.0	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		

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### 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>• Additional colours on request</li> <li>• Gold-plated contact surfaces on request</li> <li>• Rated current related to rated cross-section &amp; min. No. of poles.</li> <li>• P on drawing = pitch</li> <li>• 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.</li> <li>• 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.</li> </ul>

### 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="#">CAD data – STEP</a>
Catalogues	<a href="#">Catalogues in PDF-format</a>
Brochures	<a href="#">FL DRIVES EN</a> <a href="#">MB DEVICE MANUF. EN</a> <a href="#">FL DRIVES DE</a> <a href="#">FL BUILDING SAFETY EN</a> <a href="#">FL APPL LED LIGHTING EN</a> <a href="#">FLIndustr.CONTROLS EN</a> <a href="#">FL MACHINE SAFETY EN</a> <a href="#">FL HEATING ELECTR EN</a> <a href="#">FL APPL INVERTER EN</a> <a href="#">FL_BASE_STATION_EN</a> <a href="#">FL ELEVATOR EN</a> <a href="#">FL POWER SUPPLY EN</a> <a href="#">FL 72H SAMPLE SER EN</a> <a href="#">PO OMNIMATE EN</a> <a href="#">PO OMNIMATE EN</a>

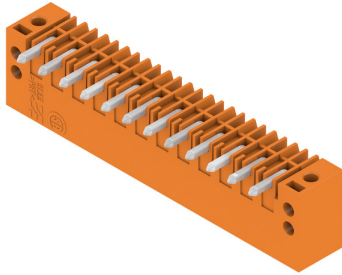
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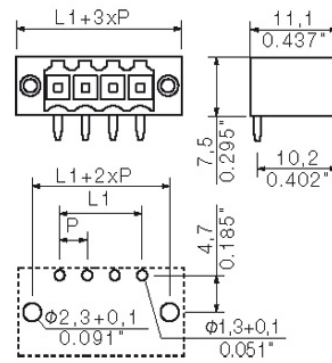
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**Drawings**

**Product image**



**Dimensional drawing**



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# Accessories

## Coding elements



**Only connects what is supposed to be connected: the right connection at the right place.**

Coding elements and locking devices clearly assign connecting elements during the manufacturing process and operation

The coding elements and locking devices are inserted prior to assembly or during the cable assembly phase. The Weidmüller alternative: configure online using the variant configurator to precode prior to delivery.

Incorrect assembly on the circuit board and incorrect plugging of connecting elements is no longer possible. The advantage: no troubleshooting during manufacture and no operational errors by the user.

## General ordering data

Type	BL SL 3.5 KO SW	Version	Product data	Packaging
Order No.	<a href="#">1610100000</a>	PCB plug-in connector, Accessories, Coding element, black, Number		Box
GTIN (EAN)	4008190187637	of poles: 1		
Qty.	100 pc(s).			
Type	BL SL 3.5 KO OR	Version	Product data	Packaging
Order No.	<a href="#">1693430000</a>	PCB plug-in connector, Accessories, Coding element, orange, Number		Box
GTIN (EAN)	4008190867447	of poles: 1		
Qty.	100 pc(s).			

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## Accessories

## LED Light guides

**Effective: the link between LED and front panel.**

Floodlight indicators allow users to monitor the switching states without requiring a special design: optical plastic directs the light from standard LEDs around a bend into the connectors or through the front plate.

The fibre-optic elements are simply clipped behind the relevant 90° bend male connectors (90° outlet direction). Versions with different incoming light beam heights achieve maximum light efficiency for LEDs with different designs or heights.

The advantages compared to conventional solutions:

- No additional LED circuit board required behind the front panel
- No "long-legged" LEDs with separate mounting required
- Bent fibre-optic cable line for maximum light efficiency
- Uncomplicated front plate bore holes due to circular shape of outgoing light beam
- Easy to maintain correct clearance and creepage distance
- Can be partitioned for smaller pole numbers

The result: simplified manufacturing process, reduced costs and simplified design

## General ordering data

Type	SL 3.5 FLA 4.0/8	Version	Product data	Packaging
Order No.	<a href="#">1597530000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190075699	Number of poles: 1		
Qty.	50 pc(s).			
Type	SL 3.5 FLA 2.3/1.75/8	Version	Product data	Packaging
Order No.	<a href="#">1597640000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190011321	Number of poles: 1		
Qty.	25 pc(s).			
Type	SL 3.5 FLA 2.3/8	Version	Product data	Packaging
Order No.	<a href="#">1597520000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190120566	Number of poles: 1		
Qty.	50 pc(s).			
Type	SL 3.5 FLA 1.5/8	Version	Product data	Packaging
Order No.	<a href="#">1597510000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190127541	Number of poles: 1		
Qty.	50 pc(s).			
Type	SL 3.5 FLA 4.0/1.75/8	Version	Product data	Packaging
Order No.	<a href="#">1597650000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190027773	Number of poles: 1		
Qty.	50 pc(s).			
Type	SL 3.5 FLA 1.5/1.75/8	Version	Product data	Packaging
Order No.	<a href="#">1597630000</a>	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190148386	Number of poles: 1		
Qty.	50 pc(s).			

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## Accessories

## Additional accessories



### No task is too small when creating the perfect solution.

Connections form just one part of the overall process. Small details are often the key to the perfect solution in applications where potentials are tested, grouped or even isolated.

A system is not a system without small but useful details:

- Test plugs - ensure reliable pick-up from diagnostic sockets
- Cross-connectors - ensure a stable electrical distribution contact directly at the connection
- Compartment partition elements - divide a large number of male connectors into several separate socket connector channels
- Locks and clips - optional vibration-resistant clip-on connection or mounting for male and female connectors

In tandem with the manufacturing process and application - more accessories = smaller workload

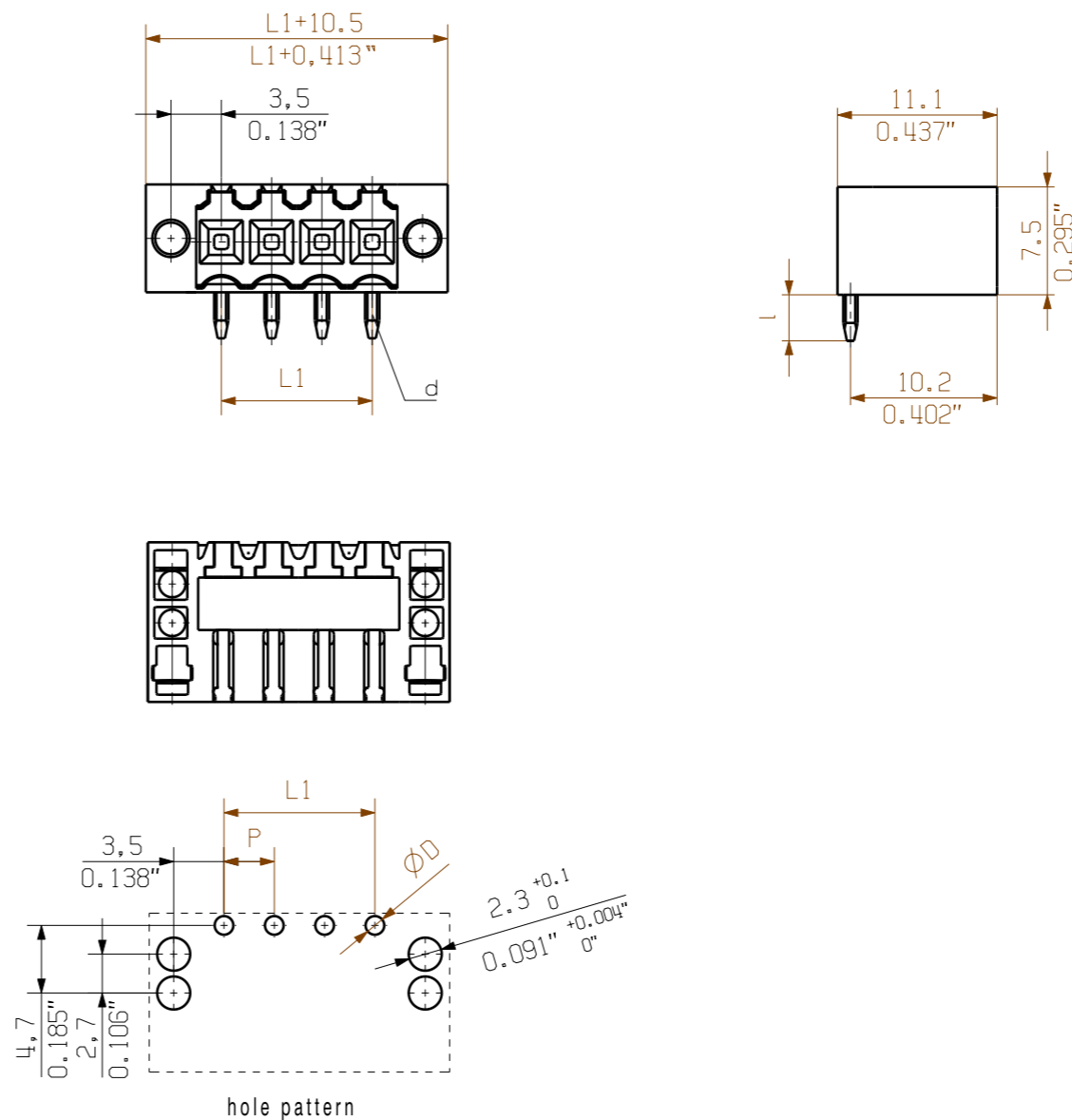
## General ordering data

Type	BL/SL 3.50 VR BK BX	Version	Product data
Order No.	<a href="#">1669300000</a>	PCB plug-in connector, Accessories, Latches, black, Number of poles:	
GTIN (EAN)	4008190428471	1	
Qty.	100 pc(s).		
Type	BL/SL 3.50 VR OR BX	Version	Product data
Order No.	<a href="#">1669310000</a>	PCB plug-in connector, Accessories, Latches, orange, Number of poles:	
GTIN (EAN)	4008190428488	1	
Qty.	100 pc(s).		
Type	PTSC KA 2.2X4.5 WN 1412	Version	Product data
Order No.	<a href="#">1610740000</a>	PCB plug-in connector, Accessories, Mounting screw, Number of	
GTIN (EAN)	4008190039523	poles: 1	
Qty.	100 pc(s).		



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24	80.5	+/-0.2	
23	77.0		
22	73.5		
21	70.0		
20	66.5		
19	63.0		
18	59.5		
17	56.0		
16	52.5		
15	49.0		
14	45.5	+/-0.15	
13	42.0		
12	38.5		
11	35.0		
10	31.5	+/-0.1	
9	28.0		
8	24.5		
7	21.0		
6	17.5		
5	14.0		
4	10.5		
3	7.0		
2	3.5		
n	Polzahl/ no of poles	L1	Toleranz/ tolerance L1

P = 3.50 Raster Pitch  
 D = Ø1,3 (+0.1, 0) Ø0.051" (+0.1, 0)  
 d = 1,2mm oktogonal 0.047" octogonal

1,5	0,1 -0,3
3,2	0,1 -0,3
4,5	0,1 -0,3
pin length l / Stiftlänge l	tolerance / Toleranz

shown : SL 3.50/04/90F

For the mounting of PCBs, it should be noted that the rated data given in the catalogue relates only to the connection elements. The necessary creepage and clearance paths must be observed in connection with the respective applicant in accordance to VDE 0110. The current-carrying capacity and pitch tolerance is to be determined according to DIN IEC 326 part 3 very fine.

Weidmüller connectors are tested to the DIN VDE 0627 standard, and are valid for its field of application. Provided that the connectors are used to the intended purpose, all requirements with respect to the occurring of electrical, mechanical, thermic and corrosive stress will be satisfied.

General tolerance: DIN ISO 2768-mK		96310/5 06.07.17 HELIS_MA 00		Cat.no.: .	
		Modification			
		Drawn	Date		
Scale: 5/1		Responsible	21.08.2008	HELIS_MA	<b>SL 3.50/.. /90...</b> STIFTLISTE MALE HEADER
Supersedes: .		Checked	20.09.2017	HERTEL_S	
		Approved		LANG_T	
Product file: SL 3.50				7296	

3 19670		48
Drawing no.		Issue no.
Sheet 03	of 03	sheets

## 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.

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