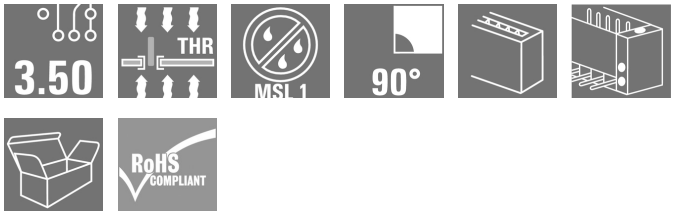
SL-SMT 3.50/18/90F 3.2SN BK BX

Weidmüller Interface GmbH & Co. KG
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D-32758 Detmold
Germany

www.weidmueller.com

Product image





High-temperature-resistant male header, 3.50 mm pitch.

- **Plugging direction parallel (90°), straight 180° or angled (135°) to PCB**
- **Housing variants: closed side (G), screw flange (F), solder flange (LF) or snap-on solder flange (RF)**
- **Optimised for the SMT process**
- **Pin length 3.2 mm universal for all soldering methods**
- **Pin length 1.5 mm optimised for reflow soldering methods**
- **Packed either in a box (BX) or tape-on-reel (RL)**
- **Male header can be coded**

General ordering data

Version	PCB plug-in connector, male header, Flange, THT/THR solder connection, 3.50 mm, Number of poles: 18, 90°, Solder pin length (l): 3.2 mm, tinned, black, Box
Order No.	1842240000
Type	SL-SMT 3.50/18/90F 3.2SN BK BX
GTIN (EAN)	4032248353590
Qty.	24 pc(s).
Product data	IEC: 320 V / 15 A UL: 300 V / 10 A
Packaging	Box

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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	70 mm
Width (inches)	2.756 inch	Net weight	5.168 g

System specifications

Product family	OMNIMATE Signal - series BL/SL 3.50
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 "
Outgoing elbow	90°
Number of poles	18
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 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
Outside diameter of solder pad	2.3 mm
Template aperture diameter	2.1 mm
L1 in mm	59.5 mm
L1 in inches	2.343 "
Number of rows	1
Pin series quantity	1
Touch-safe protection acc. to DIN VDE 57 106	finger-safe plugged/ back-of-hand-safe unplugged
Touch-safe protection acc. to DIN VDE 0470	IP20 plugged/ IP10 unplugged
Protection degree	IP10
Volume resistance	≤5 mΩ
Can be coded	Yes
Plugging cycles	25
Plugging force/pole, max.	6 N
Pulling force/pole, max.	6 N

Tightening torque				
Torque type	Mounting screw, PCB			
Usage information	Tightening torque	min.	0.1 Nm	
		max.	0.15 Nm	
	Recommended screw	Part number	PTSC KA 2.2X4.5 WN1412	

Material data

Insulating material	LCP GF	Colour	black
Colour chart (similar)	RAL 9011	Insulating material group	IIIa
Comparative Tracking Index (CTI)	≥ 175	Moisture Level (MSL)	1
UL 94 flammability rating	V-0	Contact material	Cu-alloy
Contact surface	tinned	Layer structure of solder connection	2...3 µm Ni / 5...7 µm Sn
Layer structure of plug contact	2...3 µm Ni / 5...7 µm Sn	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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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)	15 A
Rated current, max. number of poles (Tu=20°C)	12 A	Rated current, min. number of poles (Tu=40°C)	13 A
Rated current, max. number of poles (Tu=40°C)	10 A	Rated voltage for surge voltage class / pollution degree II/2	320 V
Rated voltage for surge voltage class / pollution degree III/2	160 V	Rated voltage for surge voltage class / pollution degree III/3	160 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	2.5 kV	Short-time withstand current resistance	3 x 1s with 100 A

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)	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	340 mm
VPE width	134 mm	VPE height	21 mm

Classifications

ETIM 6.0	EC002637	ETIM 7.0	EC002637
ETIM 8.0	EC002637	ETIM 9.0	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
ECLASS 12.0	27-46-02-01	ECLASS 13.0	27-46-02-01

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Technical data

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. • 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. • In accordance with IEC 61984, OMNIMATE-connectors are connectors without breaking capacity (COC). During designated use, connectors are not allowed to be engaged or disengaged when live or under load • Long term storage of the product with average temperature of 50 °C and maximum humidity 70%, 36 months

Approvals

Approvals	
ROHS	Conform
UL File Number Search	UL Website
Certificate No. (UR)	E60693

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Technical data

Downloads

Approval/Certificate/Document of Conformity	Declaration of the Manufacturer
Engineering Data	CAD data – STEP
Product Change Notification	PCN_2015_208_PL30X_SC-SMT_SL_SMT_3.xx_5.xx_neue_Tapeverpackung_Step_4_DE PCN_2015_208_PL30X_SC-SMT_SL_SMT_3.xx_5.xx_new_Tape_Packaging_Step_4_EN
Catalogues	Catalogues in PDF-format
Brochures	FL DRIVES EN MB SMT EN FL DRIVES DE MB DEVICE MANUF. EN FL BUILDING SAFETY EN FL APPL LED LIGHTING EN FL INDUSTR.CONTROLS EN FL MACHINE SAFETY EN FL HEATING ELECTR EN FL APPL_INVERTER EN FL_BASE_STATION_EN FL ELEVATOR EN FL POWER SUPPLY EN FL 72H SAMPLE SER EN PO OMNIMATE EN PO OMNIMATE EN
White paper surface mount technology	Download Whitepaper

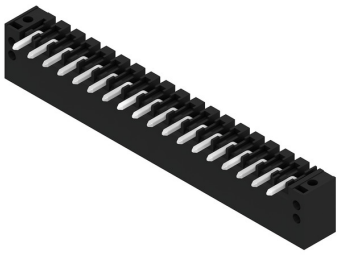
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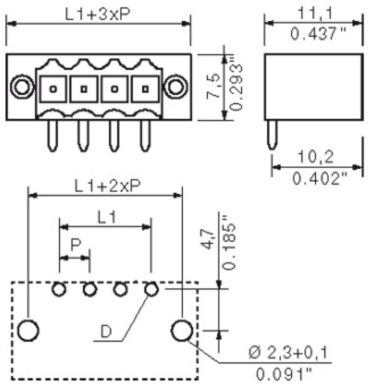
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Drawings

Product image



Dimensional drawing



L1 = 59.50 mm | P = 3.50 mm

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Accessories

Additional accessories



No task is too small when creating the perfect solution. br />
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	Packaging
Order No.	1669300000	PCB plug-in connector, Accessories, Latches, black, Number of poles:		Box
GTIN (EAN)	4008190428471	0		
Qty.	100 pc(s).			
Type	PTSC KA 2.2X4.5 WN1412	Version	Product data	
Order No.	1610740000	PCB plug-in connector, Accessories, Mounting screw, Number of		
GTIN (EAN)	4008190039523	poles: 1		
Qty.	100 pc(s).			
Type	BL/SL 3.50 VR OR BX	Version	Product data	Packaging
Order No.	1669310000	PCB plug-in connector, Accessories, Latches, orange, Number of poles:		Box
GTIN (EAN)	4008190428488	0		
Qty.	100 pc(s).			

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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 OR	Version	Product data	Packaging
Order No.	1693430000	PCB plug-in connector, Accessories, Coding element, orange, Number		Box
GTIN (EAN)	4008190867447	of poles: 1		
Qty.	100 pc(s).			

Type	BL SL 3.5 KO SW	Version	Product data	Packaging
Order No.	1610100000	PCB plug-in connector, Accessories, Coding element, black, Number		Box
GTIN (EAN)	4008190187637	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

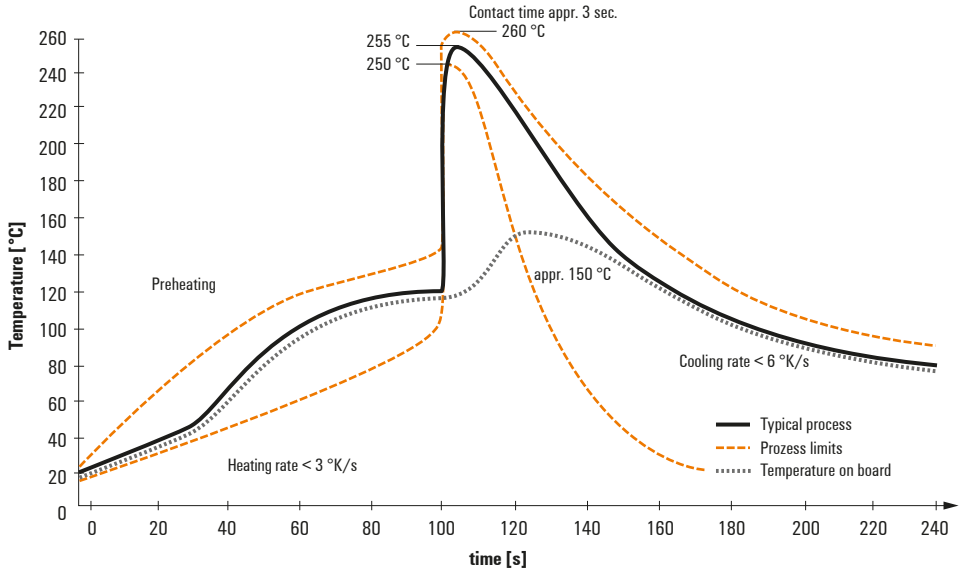
Type	SL 3.5 FLA 4.0/8	Version	Product data	Packaging
Order No.	1597530000	PCB plug-in connector, Accessories, Flood-light display, Transparent,		Box
GTIN (EAN)	4008190075699	Number of poles: 1		
Qty.	50 pc(s).			
Type	SL 3.5 FLA 2.3/8	Version	Product data	Packaging
Order No.	1597520000	PCB plug-in connector,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

Wave Solder Profile

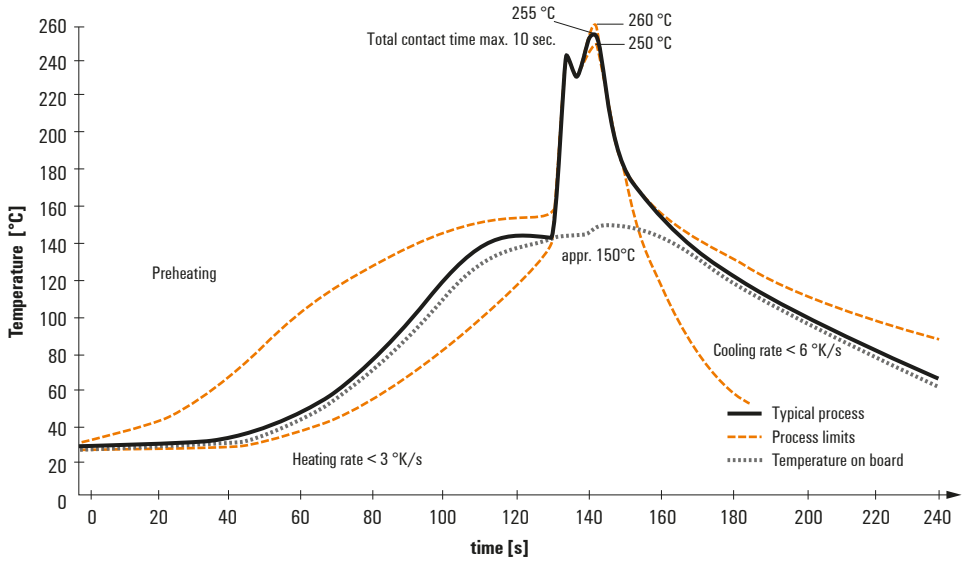
Recommended wave solderding profiles

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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

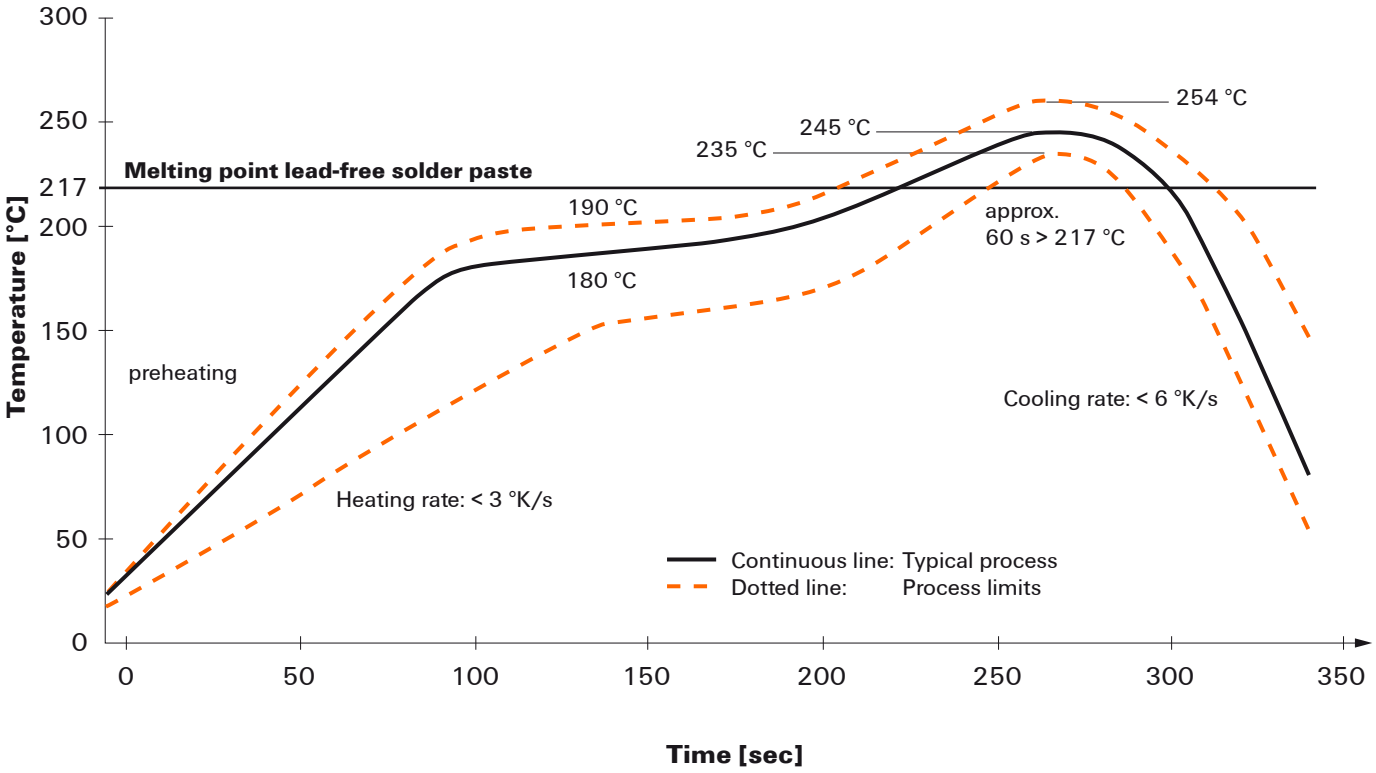
The single and double wave profiles each indicate the recommended operating range, including the maximum soldering temperature of 260°C. In practice, the maximum soldering temperature is quite often well below the above maximum profile.

We reserve the right to make technical changes.

Reflow Solder Profile

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 ≤ +3K/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 ≥ -6K/s solder is cured. Board and components cool down while avoiding cold cracks.

We reserve the right to make technical changes.