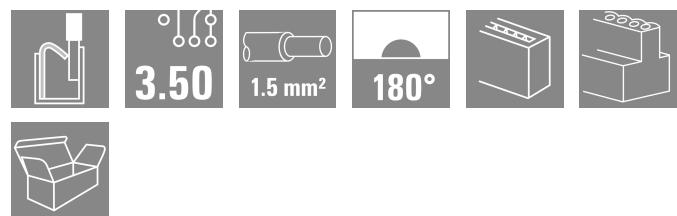
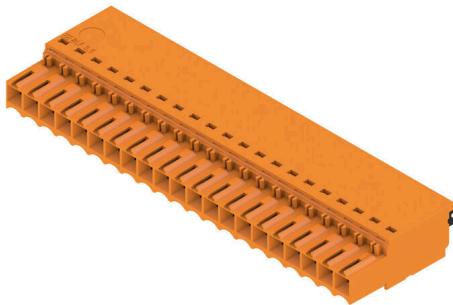


**BLF 3.50/21/180 SN OR BX**

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergsstraße 26  
D-32758 Detmold  
Germany

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

**Product image**

Connect efficiently - in a small space: female header with spring connection (PUSH IN) as a plug-in connection level; used together with male headers in 3.50 mm pitch.

**General ordering data**

Version	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 21, 180°, PUSH IN with actuator, Clamping range, max. : 1.5 mm <sup>2</sup> , Box
Order No.	<a href="#">2459240000</a>
Type	BLF 3.50/21/180 SN OR BX
GTIN (EAN)	4050118474596
Qty.	24 items
Product data	IEC: 320 V / 17.5 A / 0.14 - 1.5 mm <sup>2</sup> UL: 300 V / 10 A / AWG 26 - AWG 16
Packaging	Box

## BLF 3.50/21/180 SN OR BX

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## Technical data

## Approvals

Approvals



ROHS Conform  
UL File Number Search [UL Website](#)  
Certificate No. (cURus) E60693

## Dimensions and weights

Depth	22.7 mm	Depth (inches)	0.8937 inch
Height	9 mm	Height (inches)	0.3543 inch
Width	73.5 mm	Width (inches)	2.8937 inch
Net weight	17.17 g		

## Environmental Product Compliance

RoHS Compliance Status	Compliant without exemption
REACH SVHC	No SVHC above 0.1 wt%
Product Carbon Footprint	Cradle to gate 0,494 kg CO2 eq.

## System Parameters

Product family	OMNIMATE Signal - series BL/SL 3.50
Type of connection	Field connection
Wire connection method	PUSH IN with actuator
Pitch in mm (P)	3.50 mm
Pitch in inches (P)	0.138 "
Conductor outlet direction	180°
Number of poles	21
L1 in mm	70.00 mm
L1 in inches	2.756 "
Number of rows	1
Pin series quantity	1
Rated cross-section	1.5 mm <sup>2</sup>
Touch-safe protection acc. to DIN VDE 57 106	Safe from finger touch
Touch-safe protection acc. to DIN VDE 0470	IP20 plugged/ IP10 unplugged
Protection degree	IP20, when fully mounted
Volume resistance	≤5 mΩ
Can be coded	Yes
Stripping length	8 mm
Stripping length tolerance	min. 0 mm max. 1 mm
Screwdriver blade	0.4 x 2.5
Screwdriver blade standard	DIN 5264-A
Plugging cycles	25
Plugging force/pole, max.	6 N
Pulling force/pole, max.	6 N

## Material data

Insulating material	PA GF	Colour	orange
Colour chart (similar)	RAL 2000	Insulating material group	II

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## Technical data

Comparative Tracking Index (CTI)	$\geq 400, \leq 600$
UL 94 flammability rating	V-0
Contact surface	tinned
Storage temperature, max.	70 °C
Operating temperature, max.	120 °C
Temperature range, installation, max.	100 °C

Moisture Level (MSL)	
Contact material	Cu-alloy
Storage temperature, min.	-40 °C
Operating temperature, min.	-50 °C
Temperature range, installation, min.	-30 °C

## Conductors suitable for connection

Clamping range, min.	0.14 mm <sup>2</sup>
Clamping range, max.	1.5 mm <sup>2</sup>
Wire connection cross section AWG, min.	AWG 26
Wire connection cross section AWG, max.	AWG 16
Solid, min. H05(07) V-U	0.14 mm <sup>2</sup>
Solid, max. H05(07) V-U	1.5 mm <sup>2</sup>
Flexible, min. H05(07) V-K	0.14 mm <sup>2</sup>
Flexible, max. H05(07) V-K	1.5 mm <sup>2</sup>
w. plastic collar ferrule, DIN 46228 pt 4, 0.28 mm <sup>2</sup> min.	
w. plastic collar ferrule, DIN 46228 pt 4, 1 mm <sup>2</sup> max.	
w. wire end ferrule, DIN 46228 pt 1, min.	0.25 mm <sup>2</sup>
w. wire end ferrule, DIN 46228 pt 1, max.	1 mm <sup>2</sup>
Plug gauge in accordance with EN 60999 a x b; ø	2.4 mm x 1.5 mm

Clampable conductor	Cross-section for conductor connection	Type	fine-wired
	nominal	0.25 mm <sup>2</sup>	
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	<a href="#">H0,25/12 HBL</a>
	Cross-section for conductor connection	Type	fine-wired
	nominal	0.34 mm <sup>2</sup>	
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	<a href="#">H0,34/12 TK</a>
	Cross-section for conductor connection	Type	fine-wired
	nominal	0.5 mm <sup>2</sup>	
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	<a href="#">H0,5/14 OR</a>
	Cross-section for conductor connection	Type	fine-wired
	nominal	0.75 mm <sup>2</sup>	
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	<a href="#">H0,75/14T HBL</a>
	Cross-section for conductor connection	Type	fine-wired
	nominal	1 mm <sup>2</sup>	
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	<a href="#">H1,0/14 GE</a>

Reference text	The outside diameter of the plastic collar should not be larger than the pitch (P). Length of ferrules is to be chosen depending on the product and the rated voltage.
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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)	17.5 A
Rated current, max. number of poles (Tu=20°C)	14.7 A	Rated current, min. number of poles (Tu=40°C)	17.1 A
Rated current, max. number of poles (Tu=40°C)	13.1 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	1 x 1s with 120 A

## Rated data acc. to CSA

Rated voltage (Use group B / CSA)	300 V	Rated voltage (Use group C / CSA)	50 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	Wire cross-section, AWG, min.	AWG 16
Wire cross-section, AWG, max.	AWG 26		

## Rated data acc. to UL 1059

Institute (cURus)	CURUS	Certificate No. (cURus)	E60693
Rated voltage (Use group B / UL 1059)	300 V	Rated voltage (Use group C / UL 1059)	50 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	Wire cross-section, AWG, min.	AWG 26
Wire cross-section, AWG, max.	AWG 16	Reference to approval values	Specifications are maximum values, details - see approval certificate.

## Packing

Packaging	Box	VPE length	350.00 mm
VPE width	140.00 mm	VPE height	30.00 mm

## Type tests

Visual and dimensional test	Standard	IEC 60512-1-1:2002-02
	Test	dimensional inspection
	Evaluation	passed
	Standard	IEC 60512-1-2:2002-02
	Test	weight check
	Evaluation	passed
	Standard	IEC 61984:2001-10 section 6.2
	Test	visual examination
	Evaluation	passed
Test: Durability of markings	Standard	IEC 60068-2-70:1995-12 test Xb
	Test	mark of origin, type identification, pitch, type of material, date clock, approval marking UL, approval marking CSA, durability
	Evaluation	available
Test: Misengagement (Non-interchangeability)	Standard	IEC 60512-13-5:2006-02
	Test	intentional plugging
	Evaluation	passed
	Test	180° turned without coding elements
	Evaluation	passed
	Test	180° turned with coding elements

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## Technical data

	Evaluation	passed
	Test	visual examination
	Evaluation	passed
Test: Clampable cross section	Standard	IEC 60999-1:1999-11 section 9.1, IEC 60947-1:2011-03 section 8.2.4.5.1
	Conductor type	Type of conductor solid 0.14 mm <sup>2</sup> and conductor cross-section
		Type of conductor stranded 0.14 mm <sup>2</sup> and conductor cross-section
		Type of conductor solid 1.5 mm <sup>2</sup> and conductor cross-section
		Type of conductor stranded 1.5 mm <sup>2</sup> and conductor cross-section
		Type of conductor AWG 26/1 and conductor cross-section
		Type of conductor AWG 26/19 and conductor cross-section
		Type of conductor AWG 16/1 and conductor cross-section
		Type of conductor AWG 16/19 and conductor cross-section
	Evaluation	passed
Test for damage to and accidental loosening of conductors	Standard	IEC 60999-1:1999-11 section 9.4 bzw. section 8.10
	Requirement	0.3 kg
	Conductor type	Type of conductor H05V-U0.5 and conductor cross-section
		Type of conductor H05V-K0.5 and conductor cross-section
	Evaluation	passed
	Requirement	0.4 kg
	Conductor type	Type of conductor H07V-U1.5 and conductor cross-section
		Type of conductor H07V-K1.5 and conductor cross-section
		Type of conductor AWG 16/1 and conductor cross-section
		Type of conductor AWG 16/19 and conductor cross-section
	Evaluation	passed
	Requirement	0.2 kg
	Conductor type	Type of conductor AWG 26/1 and conductor cross-section
		Type of conductor AWG 26/19 and conductor cross-section
	Evaluation	passed
Pull-out test	Standard	IEC 60999-1:1999-11 section 9.5

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## Technical data

Requirement	≥20 N	
Conductor type	Type of conductor	H05V-U0.5
	and conductor cross-section	
		Type of conductor H05V-K0.5
		and conductor cross-section
Evaluation	passed	
Requirement	≥40 N	
Conductor type	Type of conductor	H07V-U1.5
	and conductor cross-section	
	Type of conductor	H07V-K1.5
		and conductor cross-section
		Type of conductor AWG 16/1
		and conductor cross-section
		Type of conductor AWG 16/19
		and conductor cross-section
Evaluation	passed	
Requirement	≥10 N	
Conductor type	Type of conductor	AWG 26/1
	and conductor cross-section	
		Type of conductor AWG 26/19
		and conductor cross-section
Evaluation	passed	

## 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 variants 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>Wire end ferrule without plastic collar to DIN 46228/1</li> <li>Wire end ferrule with plastic collar to DIN 46228/4</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>The test point can only be used as potential-pickup point.</li> <li>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</li> <li>Long term storage of the product with average temperature of 50 °C and maximum humidity 70%, 36 months</li> </ul>

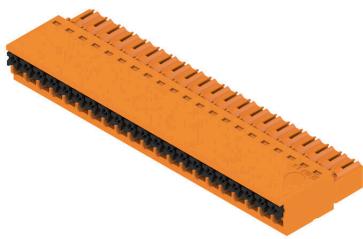
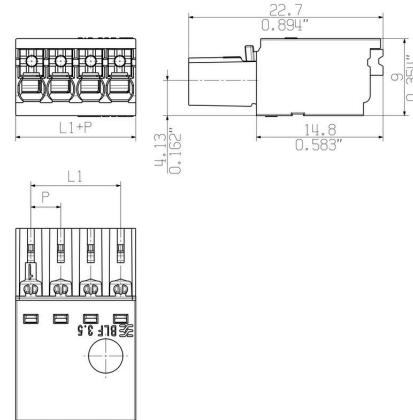
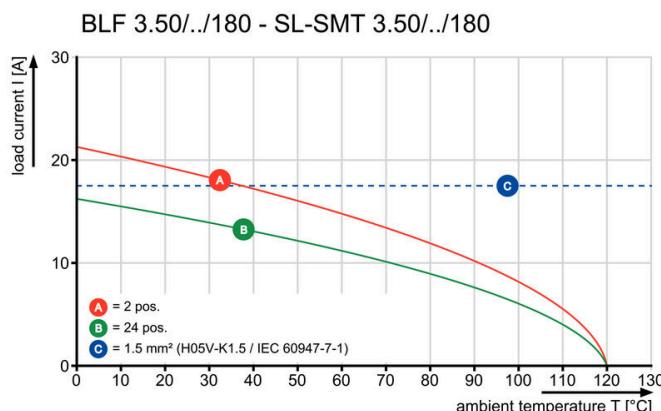
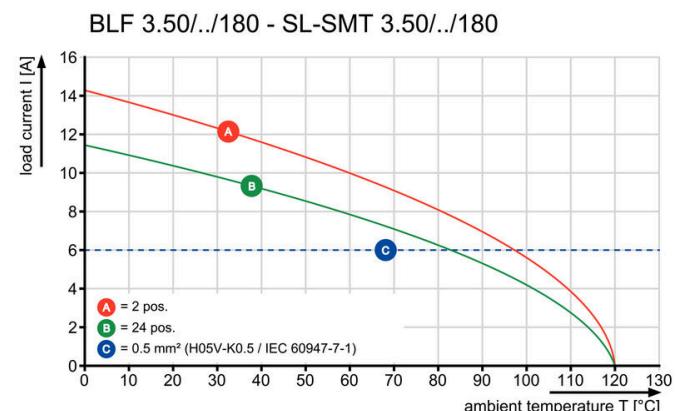
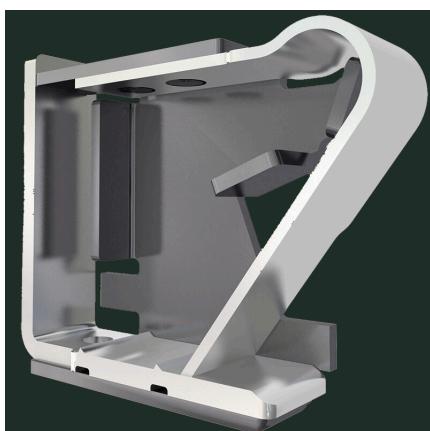
## Classifications

ETIM 8.0	EC002638	ETIM 9.0	EC002638
ETIM 10.0	EC002638	ECLASS 14.0	27-46-02-02
ECLASS 15.0	27-46-02-02		

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**Drawings****Product image****Dimensional drawing****Derating curve****Derating curve****Product benefits**

Solid PUSH IN contactSafe and durable

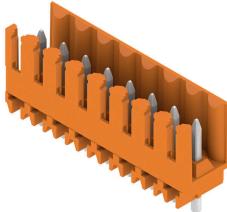
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## Counterpart

## SL 3.50/180

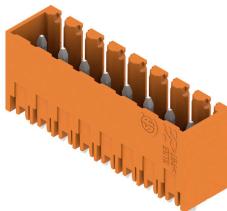


Pin headers for wave soldering in 3.50 mm pitch  
 • Plugging direction is parallel (90°), straight 180° or angled (135°) to the PCB  
 • Housing variant: screw flange (F)  
 • Packed in a cardboard box (BX)  
 • Pin header can be coded

## General ordering data

Type	SL 3.50/21/180 3.2SN OR...	Version
Order No.	<a href="#">1621440000</a>	PCB plug-in connector, male header, open side, THT solder
GTIN (EAN)	4008190172657	connection, 3.50 mm, Number of poles: 21, 180°, Solder pin length (l): 3.2 mm, tinned, orange, Box
Qty.	20 ST	

## SL 3.50/180G

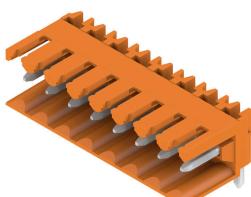


Pin headers for wave soldering in 3.50 mm pitch  
 • Plugging direction is parallel (90°), straight 180° or angled (135°) to the PCB  
 • Housing variant: screw flange (F)  
 • Packed in a cardboard box (BX)  
 • Pin header can be coded

## General ordering data

Type	SL 3.50/21/180G 3.2SN O...	Version
Order No.	<a href="#">1621830000</a>	PCB plug-in connector, male header, closed side, THT solder
GTIN (EAN)	4008190181239	connection, 3.50 mm, Number of poles: 21, 180°, Solder pin length (l): 3.2 mm, tinned, orange, Box
Qty.	20 ST	

## SL 3.50/90



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

Type	SL 3.50/21/90 3.2SN OR ...	Version
Order No.	<a href="#">1619030000</a>	PCB plug-in connector, male header, open side, THT solder
GTIN (EAN)	4008190132651	connection, 3.50 mm, Number of poles: 21, 90°, Solder pin length (l): 3.2 mm, tinned, orange, Box
Qty.	20 ST	

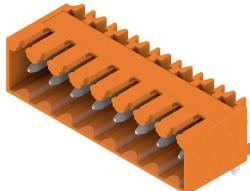
## BLF 3.50/21/180 SN OR BX

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## Counterpart

## SL 3.50/90G

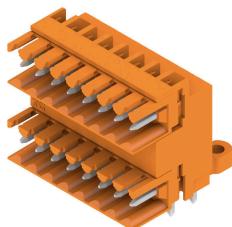


Pin headers for wave soldering in 3.50 mm pitch  
 • Plugging direction is parallel (90°), straight 180° or angled (135°) to the PCB  
 • Housing variant: screw flange (F)  
 • Packed in a cardboard box (BX)  
 • Pin header can be coded

## General ordering data

Type	SL 3.50/21/90G 3.2SN OR...	Version
Order No.	<a href="#">1619420000</a>	PCB plug-in connector, male header, closed side, THT solder
GTIN (EAN)	4008190139674	connection, 3.50 mm, Number of poles: 21, 90°, Solder pin length (l):
Qty.	20 ST	3.2 mm, tinned, orange, Box

## SLD 3.50/90

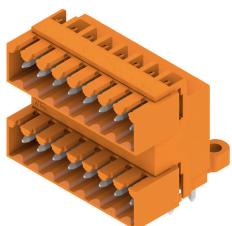


Two-tier pin header for wave soldering in 3.50 mm pitch. The connector is available in open, closed and flange versions. The male connectors provide space for labelling and can be coded. Packed in a cardboard box.

## General ordering data

Type	SLD 3.50/42/90 3.2SN OR...	Version
Order No.	<a href="#">1633540000</a>	PCB plug-in connector, male header, open side, THT solder
GTIN (EAN)	4008190257996	connection, 3.50 mm, Number of poles: 42, 90°, Solder pin length (l):
Qty.	10 ST	3.2 mm, tinned, orange, Box

## SLD 3.50/90G



Two-tier pin header for wave soldering in 3.50 mm pitch. The connector is available in open, closed and flange versions. The male connectors provide space for labelling and can be coded. Packed in a cardboard box.

## General ordering data

Type	SLD 3.50/42/90G 3.2SN O...	Version
Order No.	<a href="#">1633770000</a>	PCB plug-in connector, male header, closed side, THT solder
GTIN (EAN)	4008190258221	connection, 3.50 mm, Number of poles: 42, 90°, Solder pin length (l):
Qty.	10 ST	3.2 mm, tinned, orange, Box

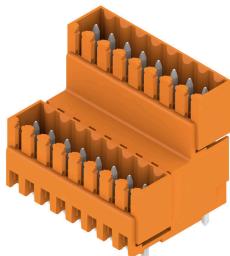
## BLF 3.50/21/180 SN OR BX

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## Counterpart

## SLD 3.50V/180G

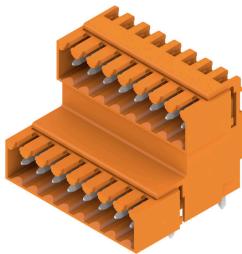


Double-level, staggered pin header for wave soldering at 3.50 mm pitch. They are available in closed and flanged versions. The male connectors provide space for labelling and can be coded.

## General ordering data

Type	SLD 3.50V/42/180G 3.2SN...	Version
Order No.	<a href="#">1891280000</a>	PCB plug-in connector, male header, closed side, THT solder
GTIN (EAN)	4032248500826	connection, 3.50 mm, Number of poles: 42, 180°, Solder pin length (l):
Qty.	10 ST	3.2 mm, tinned, orange, Box

## SLD 3.50V/90G



Double-level, staggered pin header for wave soldering at 3.50 mm pitch. They are available in closed and flanged versions. The male connectors provide space for labelling and can be coded.

## General ordering data

Type	SLD 3.50V/42/90G 3.2SN ...	Version
Order No.	<a href="#">1890670000</a>	PCB plug-in connector, male header, closed side, THT solder
GTIN (EAN)	4032248499694	connection, 3.50 mm, Number of poles: 42, 90°, Solder pin length (l):
Qty.	10 ST	3.2 mm, tinned, orange, Box

## SL-SMT 3.5/180G Box



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

## BLF 3.50/21/180 SN OR BX

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## Counterpart

## General ordering data

Type	SL-SMT 3.50/21/180G 3.2...	Version
Order No.	<a href="#">1842500000</a>	PCB plug-in connector, male header, closed side, THT/THR solder
GTIN (EAN)	4032248353866	connection, 3.50 mm, Number of poles: 21, 180°, Solder pin length
Qty.	20 ST	(l): 3.2 mm, tinned, black, Box

## SL-SMT 3.5/90G Box



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

Type	SL-SMT 3.50/21/90G 1.5S...	Version
Order No.	<a href="#">1761732001</a>	PCB plug-in connector, male header, closed side, THT/THR solder
GTIN (EAN)	4032248132324	connection, 3.50 mm, Number of poles: 21, 90°, Solder pin length (l):
Qty.	20 ST	1.5 mm, tinned, black, Box
Type	SL-SMT 3.50/21/90G 3.2S...	Version
Order No.	<a href="#">1841820000</a>	PCB plug-in connector, male header, closed side, THT/THR solder
GTIN (EAN)	4032248353170	connection, 3.50 mm, Number of poles: 21, 90°, Solder pin length (l):
Qty.	20 ST	3.2 mm, tinned, black, Box