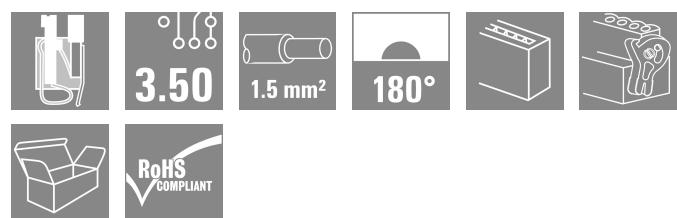


BL-I/O 3.50/10/180LR SN BK BX

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

www.weidmueller.com



Female plugs with spring connection (PUSH IN) as a plug-in connection level for decentralised I/O electronic components; used together with male headers in a 3.50-mm pitch.

General ordering data

Version	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 10, 180°, PUSH IN with actuator, Clamping range, max. : 1.5 mm ² , Box
Order No.	1531180000
Type	BL-I/O 3.50/10/180LR SN BK BX
GTIN (EAN)	4050118336245
Qty.	20 items
Product data	IEC: 200 V / 2.2 A / 0.2 - 1.5 mm ² UL: 50 V / 5 A / AWG 24 - AWG 16
Packaging	Box

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Technical data

Approvals

Approvals



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

Dimensions and weights

Depth	29.1 mm	Depth (inches)	1.1457 inch
Height	14.5 mm	Height (inches)	0.5709 inch
Width	42.3 mm	Width (inches)	1.6654 inch
Net weight	5.71 g		

Environmental Product Compliance

RoHS Compliance Status	Compliant without exemption
REACH SVHC	No SVHC above 0.1 wt%

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	10	L1 in mm	31.50 mm
L1 in inches	1.240 "	Pin series quantity	2
Rated cross-section	1 mm ²	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	Volume resistance	≤5 mΩ
Can be coded	Yes	Stripping length	8 mm
Screwdriver blade	0.4 x 2.5	Screwdriver blade standard	DIN 5264
Plugging cycles	25	Plugging force/pole, max.	6 N
Pulling force/pole, max.	6 N		

Material data

Insulating material	PBT	Colour	black
Colour chart (similar)	RAL 9011	Insulating material group	IIIa
Comparative Tracking Index (CTI)	≥ 200	Moisture Level (MSL)	
UL 94 flammability rating	V-0	Contact base material	Cu-alloy
Contact material	Cu-alloy	Contact surface	tinned
Storage temperature, min.	-40 °C	Storage temperature, max.	70 °C
Operating temperature, min.	-50 °C	Operating temperature, max.	75 °C
Temperature range, installation, min.	-30 °C	Temperature range, installation, max.	75 °C

Conductors suitable for connection

Clamping range, min.	0.2 mm ²
Clamping range, max.	1.5 mm ²
Wire connection cross section AWG, min.	AWG 24
Wire connection cross section AWG, max.	AWG 16

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Technical data

Solid, min. H05(07) V-U	0.2 mm ²
Solid, max. H05(07) V-U	1.5 mm ²
Flexible, min. H05(07) V-K	0.2 mm ²
Flexible, max. H05(07) V-K	1.5 mm ²
w. plastic collar ferrule, DIN 46228 pt 4, 0.2 mm ² min.	
w. plastic collar ferrule, DIN 46228 pt 4, 0.75 mm ² max.	
w. wire end ferrule, DIN 46228 pt 1, min.	0.2 mm ²
w. wire end ferrule, DIN 46228 pt 1, max.	1 mm ²
Plug gauge in accordance with EN 60999 a x b; ø	2.4 mm x 1.5 mm; 1.9mm

Clampable conductor	Cross-section for conductor connection	Type	fine-wired
	nominal	0.25 mm ²	
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	HO,25/12 HBL
	Cross-section for conductor connection	Type	fine-wired
	nominal	0.34 mm ²	
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	HO,34/12 TK
	Cross-section for conductor connection	Type	fine-wired
	nominal	0.5 mm ²	
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	HO,5/14 OR
	Cross-section for conductor connection	Type	fine-wired
	nominal	0.75 mm ²	
	wire end ferrule	Stripping length	nominal 10 mm
		Recommended wire-end ferrule	HO,75/14T HBL

Reference text	Other cables on request
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Rated data acc. to IEC

tested acc. to standard	IEC 60664-1, IEC 61984	Rated current, min. number of poles (Tu=20°C)	2.2 A
Rated current, max. number of poles (Tu=20°C)	2 A	Rated current, min. number of poles (Tu=40°C)	2.2 A
Rated current, max. number of poles (Tu=40°C)	2 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	50 V
Rated impulse voltage for surge voltage class/ pollution degree II/2	2500 V	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	0.8 kV	Short-time withstand current resistance	3 x 1s with 120 A

Rated data acc. to CSA

Rated voltage (Use group B / CSA)	50 V	Rated voltage (Use group D / CSA)	50 V
Rated current (Use group B / CSA)	5 A	Rated current (Use group D / CSA)	5 A
Wire cross-section, AWG, min.	AWG 22	Wire cross-section, AWG, max.	AWG 16

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Technical data

Rated data acc. to UL 1059

Institute (UR)	UR	Certificate No. (UR)	E60693
Rated voltage (Use group B / UL 1059)	50 V	Rated voltage (Use group D / UL 1059)	50 V
Rated current (Use group B / UL 1059)	5 A	Rated current (Use group D / UL 1059)	5 A
Wire cross-section, AWG, min.	AWG 24	Wire cross-section, AWG, max.	AWG 16
Reference to approval values	Specifications are maximum values, details - see approval certificate.		

Packing

Packaging	Box	VPE length	140.00 mm
VPE width	105.00 mm	VPE height	35.00 mm

Type tests

Test: Durability of markings	Standard	draft DIN VDE 0627 section 6.2.2 / 09.91
	Test	mark of origin, type identification, pitch, type of material
	Evaluation	available
	Test	durability
	Evaluation	passed
Test: Clampable cross section	Standard	DIN EN 60999-1 section 7 and 9.1 / 12.00, DIN EN 60947-1 section 8.2.4.5.1 / 12.99
	Conductor type	Type of conductor solid 0.2 mm ² and conductor cross-section
		Type of conductor stranded 0.2 mm ² and conductor cross-section
		Type of conductor solid 1.5 mm ² and conductor cross-section
		Type of conductor stranded 1.5 mm ² and conductor cross-section
		Type of conductor AWG 24/1 and conductor cross-section
		Type of conductor AWG 24/19 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	DIN EN 60999 section 8.4 / 04.94
	Requirement	0.2 kg
	Conductor type	Type of conductor stranded 0.05 mm ² and conductor cross-section
	Evaluation	passed
	Requirement	0.3 kg
	Conductor type	Type of conductor solid 0.5 mm ² and conductor cross-section

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Technical data

Pull-out test	Evaluation	passed
	Requirement	0.4 kg
	Conductor type	Type of conductor AWG 24/1 and conductor cross-section
		Type of conductor AWG 24/19 and conductor cross-section
	Evaluation	passed
	Standard	DIN EN 60999 section 8.5 / 04.94
	Requirement	≥10 N
	Conductor type	Type of conductor AWG 24/1 and conductor cross-section
		Type of conductor AWG 24/19 and conductor cross-section
	Evaluation	passed
	Requirement	≥30 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 H05V-U1.5 and conductor cross-section
		Type of conductor H05V-K1.5 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"> 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. P on drawing = pitch Crimp form A for wire end ferrules with PZ 6/5 crimping tool are recommended for the largest cable sizes. Total load-carrying capacity of the potential bridges when feeding with 1.5 mm² is max. 17.5 A (so the capacity is 2.18 A for poles 2 through 9) Wire end ferrule without plastic collar to DIN 46228/1 Wire end ferrule with plastic collar to DIN 46228/4 Conductor < 0.2 mm² tinned Max. outer diameter of the conductor: 2.9 mm

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Technical data

- 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

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		

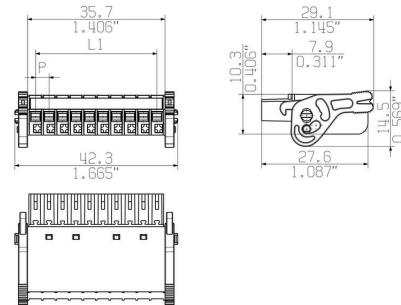
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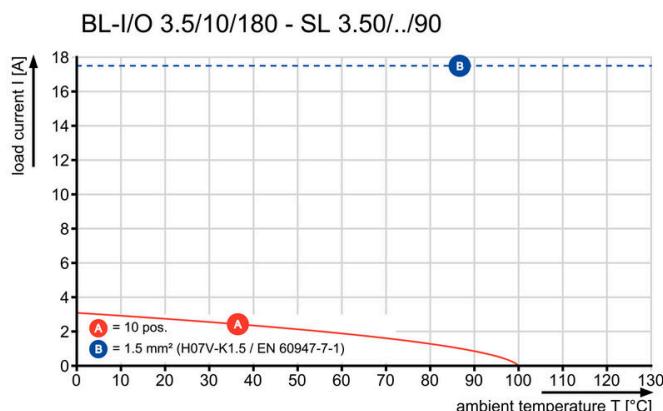
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Drawings

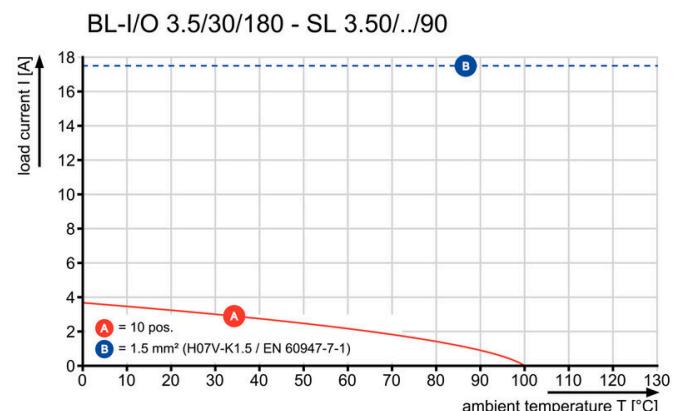
Dimensional drawing



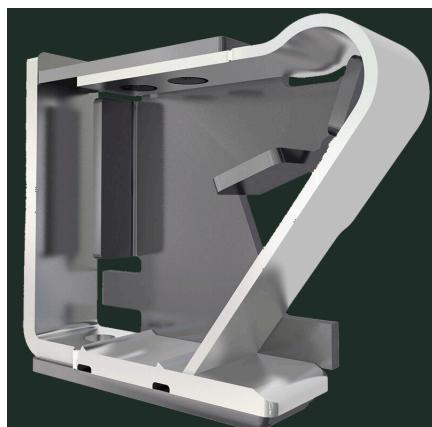
Graph



Graph

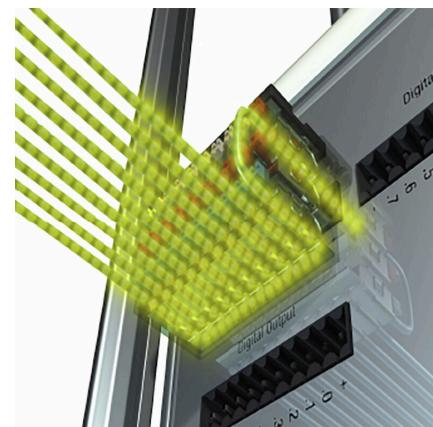


Product benefits



Solid PUSH IN contactSafe and durable

Product benefits



Multiples the potentialLow wiring costs

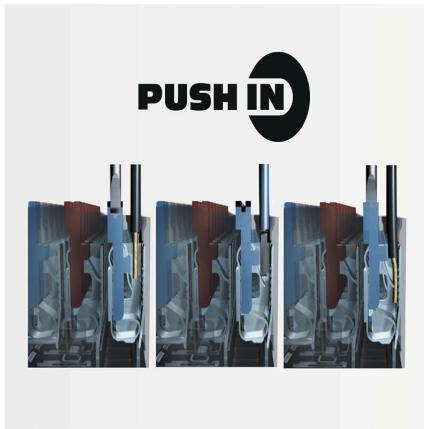
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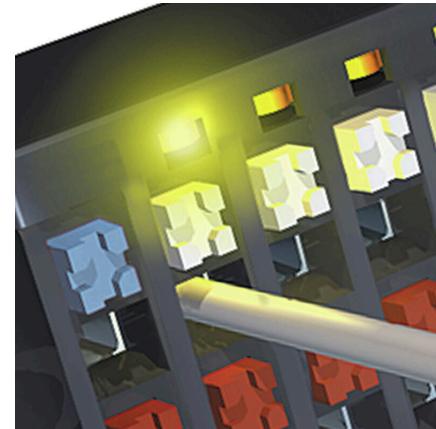
Drawings

Product benefits



PUSH IN - fast and secureInvented by Weidmüller

Product benefits



Integrated electronicsFor more space on the circuit board

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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

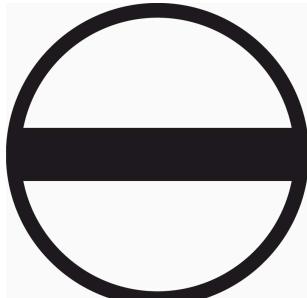
The coding elements and locking devices are inserted prior to assembly or during the cable assembly phase. The Weidmüller alternative: configure online using the variant configurator to precode prior to delivery.

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
Order No.	1693430000	PCB plug-in connector, Accessories, Coding element, orange, Number
GTIN (EAN)	4008190867447	of poles: 1
Qty.	100 ST	
Type	BL SL 3.5 KO SW	Version
Order No.	1610100000	PCB plug-in connector, Accessories, Coding element, black, Number
GTIN (EAN)	4008190187637	of poles: 1
Qty.	100 ST	

Slotted screwdriver



Slotted screwdriver with rounded blade SD DIN 5265, ISO 2380/2, output to DIN 5264, ISO 2380/1. ChromTop tip, SoftFinish grip

General ordering data

Type	SDS 0.4X2.5X75	Version
Order No.	9009030000	Screwdriver, Screwdriver
GTIN (EAN)	4032248266944	
Qty.	1 ST	
Type	SDIS 0.4X2.5X75	Version
Order No.	9008370000	Screwdriver, Screwdriver
GTIN (EAN)	4032248056330	
Qty.	1 ST	

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Accessories

Crimping tools



Crimping tools for wire end ferrules, with and without plastic collars

- Ratchet guarantees precise crimping
- Release option in the event of incorrect operation

General ordering data

Type	PZ 1.5	Version
Order No.	9005990000	Pressing tool, Crimping tool for wire-end ferrules, 0.14mm ² , 1.5mm ² ,
GTIN (EAN)	4008190085964	Trapezoidal crimp
Qty.	1 ST	
Type	PZ 6/5	Version
Order No.	9011460000	Pressing tool, Crimping tool for wire-end ferrules, 0.25mm ² , 6mm ² ,
GTIN (EAN)	4008190165352	Trapezoidal indentation crimp
Qty.	1 ST	

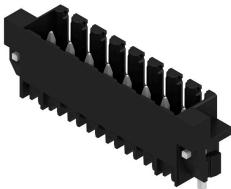
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Counterpart

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SL-SMT 3.5/180RF



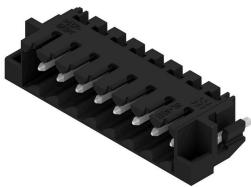
High-temperature-resistant male header, 3.50 mm pitch.

- 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 3.50/10/180RF 1...	Version
Order No.	1291390000	PCB plug-in connector, male header, Clip-on flange, THT/THR solder
GTIN (EAN)	4050118085266	connection, 3.50 mm, Number of poles: 10, 180°, Solder pin length
Qty.	50 ST	(l): 1.5 mm, tinned, black, Box

SL-SMT 3.5/90RF



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 3.50/10/90RF 1.5...	Version
Order No.	1060780000	PCB plug-in connector, male header, Clip-on flange, THT/THR solder
GTIN (EAN)	4032248810246	connection, 3.50 mm, Number of poles: 10, 90°, Solder pin length (l):
Qty.	50 ST	1.5 mm, tinned, black, Box