

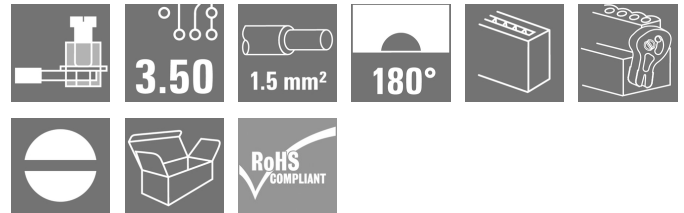
BL 3.50/20/180LH SN BK BX**Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com

Product image

Female connectors with clamping yoke screw system for connecting conductors at 3.50 mm pitch. They provide space for labelling and can be coded.

General ordering data

Version	PCB plug-in connector, female plug, 3.50 mm, Number of poles: 20, 180°, Clamping yoke connection, Clamping range, max. : 1.5 mm², Box
Order No.	1688060000
Type	BL 3.50/20/180LH SN BK BX
GTIN (EAN)	4008190853617
Qty.	24 pc(s).
Product data	IEC: 320 V / 17 A / 0.2 - 1.5 mm² UL: 300 V / 10 A / AWG 28 - AWG 14
Packaging	Box

Creation date July 24, 2024 8:51:27 PM CEST

Catalogue status 13.07.2024 / We reserve the right to make technical changes.

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Technical data**Dimensions and weights**

Depth	29.5 mm	Depth (inches)	1.161 inch
Height	14.9 mm	Height (inches)	0.587 inch
Width	76.5 mm	Width (inches)	3.012 inch
Net weight	16.25 g		

System Parameters

Product family	OMNIMATE Signal - series BL/SL 3.50		
Type of connection	Field connection		
Wire connection method	Clamping yoke connection		
Pitch in mm (P)	3.5 mm		
Pitch in inches (P)	0.138 "		
Conductor outlet direction	180°		
Number of poles	20		
L1 in mm	66.5 mm		
L1 in inches	2.618 "		
Number of rows	1		
Pin series quantity	1		
Rated cross-section	1.5 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		
Protection degree	IP20, when fully mounted		
Volume resistance	≤5 mΩ		
Can be coded	Yes		
Stripping length	6 mm		
Clamping screw	M 2		
Screwdriver blade	0.4 x 2.5		
Screwdriver blade standard	DIN 5264		
Plugging cycles	25		
Plugging force/pole, max.	7 N		
Pulling force/pole, max.	5 N		
Tightening torque	Torque type	Wire connection	
	Usage information	Tightening torque	<div>min. 0.2 Nm</div> <div>max. 0.25 Nm</div>

Material data

Insulating material	PBT	Colour	black
Colour chart (similar)	RAL 9011	Insulating material group	IIIa
Comparative Tracking Index (CTI)	≥ 200	UL 94 flammability rating	V-0
Contact material	Cu-alloy	Contact surface	tinned
Layer structure of plug contact	4...8 µm Sn hot-dip tinned	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		

Conductors suitable for connection

Clamping range, min.	0.08 mm ²
Clamping range, max.	1.5 mm ²
Wire connection cross section AWG, min.	AWG 28

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Wire connection cross section AWG, max.	AWG 14			
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, 1.5 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.	1.5 mm ²			
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	0.5 mm ²	
	wire end ferrule	Stripping length	nominal	8 mm
		Recommended wire-end ferrule	H0.5/12 OR	
		Stripping length	nominal	6 mm
		Recommended wire-end ferrule	H0.5/6	
	Cross-section for conductor connection	Type	fine-wired	
		nominal	0.75 mm ²	
	wire end ferrule	Stripping length	nominal	8 mm
		Recommended wire-end ferrule	H0.75/12 W	
		Stripping length	nominal	6 mm
		Recommended wire-end ferrule	H0.75/6	
	Cross-section for conductor connection	Type	fine-wired	
		nominal	1 mm ²	
	wire end ferrule	Stripping length	nominal	8 mm
		Recommended wire-end ferrule	H1.0/12 GE	
		Stripping length	nominal	6 mm
		Recommended wire-end ferrule	H1.0/6	
	Cross-section for conductor connection	Type	fine-wired	
		nominal	0.25 mm ²	
	wire end ferrule	Stripping length	nominal	8 mm
		Recommended wire-end ferrule	H0.25/10 HBL	
		Stripping length	nominal	5 mm
		Recommended wire-end ferrule	H0.25/5	
	Cross-section for conductor connection	Type	fine-wired	
		nominal	0.34 mm ²	
	wire end ferrule	Stripping length	nominal	8 mm
		Recommended wire-end ferrule	H0.34/10 TK	
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 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 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	320 V	Rated impulse voltage for surge voltage class/ pollution degree III/2	160 V
Rated impulse voltage for surge voltage class/ contamination degree III/3	160 V	Short-time withstand current resistance	3 x 1s with 100 A

Rated data acc. to CSA

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
Wire cross-section, AWG, min.	AWG 28	Wire cross-section, AWG, max.	AWG 14

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
Wire cross-section, AWG, min.	AWG 28	Wire cross-section, AWG, max.	AWG 14
Reference to approval values	Specifications are maximum values, details - see approval certificate.		

Packing

Packaging	Box	VPE length	104 mm
VPE width	84 mm	VPE height	70 mm

Type tests

Test: Durability of markings	Standard	DIN EN 61984 section 7.3.2 / 09.02 taking pattern from DIN EN 60068-2-70 / 07.96
	Test	mark of origin, type identification, approval marking SEV, approval marking CSA
	Evaluation	available
	Test	durability
	Evaluation	passed
Test: Misengagement (Non-interchangeability)	Standard	DIN EN 61984 section 6.3 and 6.9.1 / 09.02, DIN IEC 60512 part 7 section 5 / 05.94
	Test	180° turned with coding elements
	Evaluation	passed

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Technical data

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 and solid 0.2 mm ² conductor cross-section	
		Type of conductor and stranded 0.2 mm ² conductor cross-section	
		Type of conductor and solid 1.5 mm ² conductor cross-section	
		Type of conductor and stranded 1.5 mm ² conductor cross-section	
		Type of conductor and AWG 28/1 conductor cross-section	
		Type of conductor and AWG 28/19 conductor cross-section	
		Type of conductor and AWG 16/1 conductor cross-section	
		Type of conductor and AWG 16/19 conductor cross-section	
	Evaluation	passed	
Test for damage to and accidental loosening of conductors	Standard	DIN EN 60999-1 section 9.4 / 12.00	
	Requirement	0.2 kg	
	Conductor type	Type of conductor and AWG 28/1 conductor cross-section	
		Type of conductor and AWG 28/19 conductor cross-section	
	Evaluation	passed	
	Requirement	0.3 kg	
	Conductor type	Type of conductor and 2 × AWG 24/1 conductor cross-section	
		Type of conductor and 2 × AWG 24/19 with wire end ferrule conductor cross-section	
	Evaluation	passed	
	Requirement	0.4 kg	
	Conductor type	Type of conductor and solid 1.5 mm ² conductor cross-section	
		Type of conductor and stranded 1.5 mm ² conductor cross-section	
		Type of conductor and AWG 16/7 conductor cross-section	
	Evaluation	passed	

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Technical data

Pull-out test	Standard	DIN EN 60999-1 section 9.5 / 12.00	
	Requirement	≥5 N	
	Conductor type	Type of conductor and AWG 28/1 conductor cross-section	
		Type of conductor and AWG 28/19 conductor cross-section	
	Evaluation	passed	
	Requirement	≥10 N	
	Conductor type	Type of conductor and 2 × AWG 24/1 conductor cross-section	
		Type of conductor and 2 × AWG 24/19 with conductor cross-section wire end ferrule	
	Evaluation	passed	
	Requirement	≥40 N	
	Conductor type	Type of conductor and H05V-U1.5 conductor cross-section	
		Type of conductor and H05V-K1.5 conductor cross-section	
		Type of conductor and AWG 16/7 conductor cross-section	
	Evaluation	passed	

Classifications

ETIM 6.0	EC002638	ETIM 7.0	EC002638
ETIM 8.0	EC002638	ETIM 9.0	EC002638
ECLASS 9.0	27-44-03-09	ECLASS 9.1	27-44-03-09
ECLASS 10.0	27-44-03-09	ECLASS 11.0	27-46-02-02
ECLASS 12.0	27-46-02-02	ECLASS 13.0	27-46-02-02

Environmental Product Compliance

REACH SVHC	/
RoHS Compliance Status	Compliant without exemption

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www.weidmueller.com**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	<ul style="list-style-type: none">• Additional variants on request• Gold-plated contact surfaces on request• Rated current related to rated cross-section & min. No. of poles.• Max. outer diameter of the conductor: 2.9 mm• Wire end ferrule without plastic collar to DIN 46228/1• Wire end ferrule with plastic collar to DIN 46228/4• 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.• 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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www.weidmueller.com**Technical data****Downloads**Approval/Certificate/Document of Con-
formity[Declaration of the Manufacturer](#)

Engineering Data

[CAD data – STEP](#)

Product Change Notification

[Change of Material LR 3.50 - DE](#)[Change of Material LR 3.50 - EN](#)

Catalogues

[Catalogues in PDF-format](#)

Brochures

[FL DRIVES EN](#)[MB DEVICE MANUF. EN](#)[FL DRIVES DE](#)[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](#)

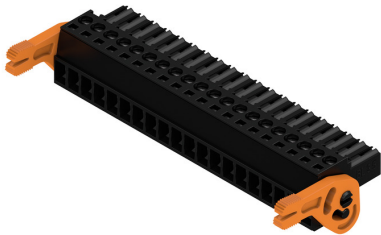
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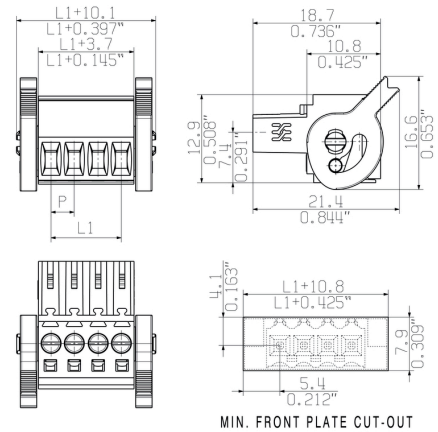
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Drawings

Product image



Dimensional drawing



Graph



Graph



Graph



Graph



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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).			

Strain reliefs


For frequent load changes: the "trailer coupling" for plug-in connectors.

The strain relief can do more than just relieve the strain on conductors:

Simply clip onto the plug and

- bundle conductors
- guide cables
- use as a connection and disconnection aid

No damage to the connecting points, clear, tidy wiring and easy to handle.

User advantages: permanent heavy-duty connections for harsh industrial environments and convenient operation ensure improved system availability.

General ordering data

Type	BL 3.50 ZE08 BK BX	Version	Product data	Packaging
Order No.	1627830000	PCB plug-in connector, Accessories, Strain relief, black, Number of		Box
GTIN (EAN)	4008190202576	poles: 8		
Qty.	50 pc(s).			
Type	BL 3.50 ZE08 OR BX	Version	Product data	Packaging
Order No.	1629690000	PCB plug-in connector, Accessories, Strain relief, orange, Number of		Box
GTIN (EAN)	4008190202583	poles: 8		
Qty.	50 pc(s).			

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www.weidmueller.com**Accessories**

Type	BL 3.50 ZE03 BK BX	Version	Product data	Packaging
Order No.	1627820000	PCB plug-in connector, Accessories, Strain relief, black, Number of		Box
GTIN (EAN)	4008190202552	poles: 3		
Qty.	50 pc(s).			
Type	BL 3.50 ZE03 OR BX	Version	Product data	Packaging
Order No.	1629680000	PCB plug-in connector, Accessories, Strain relief, orange, Number of		Box
GTIN (EAN)	4008190202569	poles: 3		
Qty.	50 pc(s).			

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THE GERMAN VERSION IS BINDING



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

SHOWN: BL 3.50/04/180/LH...

	DIN ISO 2768-m				CAT.NO.: .	
	69114/0 20.03.13 HELIS_MA 01		MODIFICATION			
	DRAWN	21.07.2009	HELIS_MA	BL 3.50/./180/ L(H/R) BUCHSENLEISTE SOCKET BLOCK		
	RESPONSIBLE		LANG_T			
SCALE: 2/1	CHECKED	04.04.2013	HECKERT_M			
SUPERSEDES: .	APPROVED		HECKERT_M	7382		

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DRAWING NO. SHEET 01 OF 02 SHEETS

ISSUE NO. 11

24	80,50	3,169
23	77,00	3,031
22	73,50	2,894
21	70,00	2,756
20	66,50	2,618
19	63,00	2,480
18	59,50	2,343
17	56,00	2,205
16	52,50	2,067
15	49,00	1,929
14	45,50	1,791
13	42,00	1,654
12	38,50	1,516
11	35,00	1,378
10	31,50	1,240
9	28,00	1,102
8	24,50	0,965
7	21,00	0,827
6	17,50	0,689
5	14,00	0,551
4	10,50	0,413
3	7,00	0,276
2	3,50	0,138
n	L1 [mm]	L1 [inch]