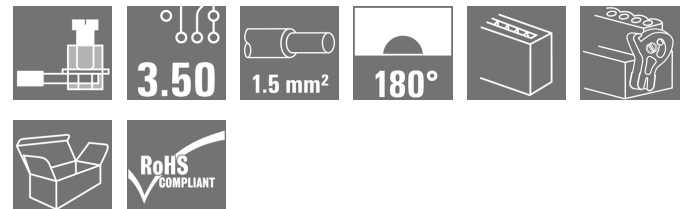


BL 3.50/12/180LR SN OR BX**Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com**Product image**

Similar to illustration

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: 12, 180°, Clamping yoke connection, Clamping range, max.: 1.5 mm², Box
Order No.	1531100000
Type	BL 3.50/12/180LR SN OR BX
GTIN (EAN)	4050118336207
Qty.	36 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 March 24, 2021 5:05:25 AM CET

BL 3.50/12/180LR SN OR BX

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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
Net weight	11.514 g	Width	48.5 mm
Width (inches)	1.909 inch		

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 inch		
Conductor outlet direction	180°		
Number of poles	12		
L1 in mm	38.5 mm		
L1 in inches	1.516 inch		
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	IP 20		
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	min. 0.2 Nm max. 0.25 Nm

Material data

Insulating material	PBT	Colour	orange
Colour chart (similar)	RAL 2000	Insulating material group	IIIa
Comparative Tracking Index (CTI)	≥ 200	Insulation strength	≥ 10 ⁸ Ω
UL 94 flammability rating	V-0	Contact material	Copper 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
Wire connection cross section AWG, max.	AWG 14

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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, 0.2 mm ² min.			
w. wire end ferrule, DIN 46228 pt 1, 1.5 mm ² max.			
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	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

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	35 mm
VPE width	145 mm	VPE height	340 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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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 conductor cross-section	solid 0.2 mm ²
		Type of conductor and conductor cross-section	stranded 0.2 mm ²
		Type of conductor and conductor cross-section	solid 1.5 mm ²
		Type of conductor and conductor cross-section	stranded 1.5 mm ²
		Type of conductor and conductor cross-section	AWG 28/1
		Type of conductor and conductor cross-section	AWG 28/19
		Type of conductor and conductor cross-section	AWG 16/1
		Type of conductor and conductor cross-section	AWG 16/19
	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 conductor cross-section	AWG 28/1
		Type of conductor and conductor cross-section	AWG 28/19
	Evaluation	passed	
	Requirement	0.3 kg	
	Conductor type	Type of conductor and conductor cross-section	2 × AWG 24/1
		Type of conductor and conductor cross-section	2 × AWG 24/19 with wire end ferrule
	Evaluation	passed	
	Requirement	0.4 kg	
	Conductor type	Type of conductor and conductor cross-section	solid 1.5 mm ²
		Type of conductor and conductor cross-section	stranded 1.5 mm ²
		Type of conductor and conductor cross-section	AWG 16/7
	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 conductor cross-section	AWG 28/1
		Type of conductor and conductor cross-section	AWG 28/19
	Evaluation	passed	
	Requirement	≥10 N	
	Conductor type	Type of conductor and conductor cross-section	2 × AWG 24/1
		Type of conductor and conductor cross-section	2 × AWG 24/19 with wire end ferrule
	Evaluation	passed	
	Requirement	≥40 N	
	Conductor type	Type of conductor and conductor cross-section	H05V-U1.5
		Type of conductor and conductor cross-section	H05V-K1.5
		Type of conductor and conductor cross-section	AWG 16/7
	Evaluation	passed	

Classifications

ETIM 6.0	EC002638	ETIM 7.0	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

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	• Additional colours 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. • Long term storage of the product with average temperature of 50 °C and average humidity 70%, 36 months

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Technical data

Approvals

Approvals



ROHS	Conform
UL File Number Search	E60693

Downloads

Approval/Certificate/Document of Conformity	Declaration of the Manufacturer
Engineering Data	STEP
Product Change Notification	Change of Material LR 3.50 - DE Change of Material LR 3.50 - EN

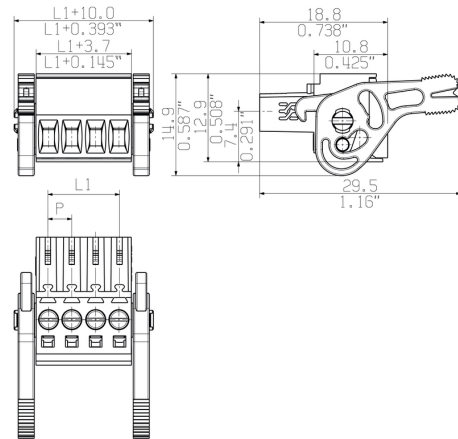
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Drawings

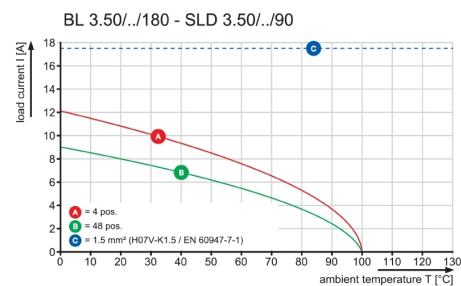
Dimensional drawing



Graph



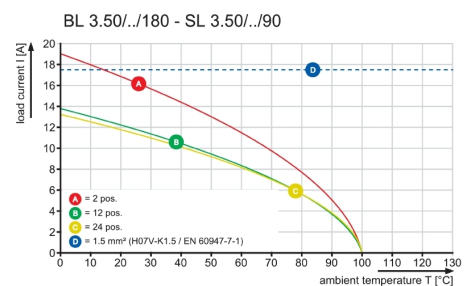
Graph



Graph



Graph



Technical drawing of a 4-bolt flange. The drawing shows a top view of the flange with four bolts. The dimensions are as follows:

- Overall diameter: $L1+3.5$
- Distance from center to bolt center: $L1+0.137"$
- Bolt diameter: $L1+7$
- Distance from center to bolt hole center: $L1+0.275"$
- Distance from center to bolt hole edge: $L1+10.5$
- Distance from center to bolt hole edge (including bolt diameter): $L1+0.413"$

M 1/1



Technical drawing of a screwdriver bit. The drawing shows the bit's profile with the following dimensions:

- Overall length: 18.75
- Overall width: 0.738"
- Top section height: 7.4
- Top section width: 0.291"
- Bottom section width: 10.8
- Bottom section width: 0.425"
- Bottom section height: 12.9
- Bottom section height: 0.508"

Orientation labels:

- SCREWDRIVER DIRECTION (indicated by an arrow pointing up)
- CONDUCTOR DIRECTION (indicated by an arrow pointing right)

Technical drawing of the front view of a 4-lamp luminaire. The drawing shows a rectangular body with four square lamps arranged in a row. Dimensions are provided in millimeters (L1) and inches (0.377). The height of the luminaire is 9.58 inches (0.377 inches). The width dimensions are: L1+3.5, L1+0.137 inches, L1+8.7, L1+0.342 inches, L1+9.9, and L1+0.389 inches.

Technical drawing of a screwdriver head showing dimensions and orientation. The drawing includes a top view and a side view. The top view shows a circular head with a central hole and a slot. The side view shows the profile of the head. Dimensions are provided in inches and millimeters. The orientation is indicated by a screwdriver icon and the text "SCREWDRIVER DIRECTION" and "CONDUCTOR DIRECTION".

Dimensions (inches):

- Overall width: 10.8
- Overall height: 12.9
- Head width: 0.425
- Head height: 0.508
- Head thickness: 0.613
- Head diameter: 0.291
- Head radius: 0.425
- Head depth: 0.738
- Head width at base: 0.846
- Head width at base: 21.5
- Head width at base: 18.75
- Head width at base: 0.738

Orientation:

- SCREWDRIVER DIRECTION
- CONDUCTOR DIRECTION

Technical drawing of the front view of the 'L' model. The drawing shows a symmetrical design with a central panel and side panels. Dimensions are provided for the overall width and the width of the central panel at different heights. The overall width is 6.9 units. The central panel width at the top is $L1+3.5$, at a height of $L1+0.137$ it is $L1+8.7$, at a height of $L1+0.342$ it is $L1+0.342$, at a height of $L1+9.9$ it is $L1+9.9$, and at the bottom it is $L1+0.389$.

Technical drawing of a screwdriver bit. The drawing includes the following dimensions and labels:

- SCREWDRIVER DIRECTION**: Indicated by an arrow pointing upwards.
- CONDUCTOR DIRECTION**: Indicated by an arrow pointing to the right.
- M 1/1**: A label next to a small screwdriver bit icon.
- Dimensions**:
 - Overall length: 0.929"
 - Length of the main body: 0.738"
 - Length of the handle: 0.425"
 - Length of the tip: 0.508"
 - Length of the handle section: 0.684"
 - Length of the handle section: 17.4
 - Length of the handle section: 12.9
 - Length of the handle section: 18.75
 - Length of the handle section: 10.8
 - Length of the handle section: 23.6

M 1/1

Technical drawing of the M 1/1 connector. The drawing includes the following dimensions and labels:

- SCREWDRIVER DIRECTION:** Indicated by an arrow pointing upwards.
- CONDUCTOR DIRECTION:** Indicated by an arrow pointing to the right.
- M 1/1:** Label for the connector type.
- Dimensions:**
 - Overall width: 29.5 (1.16")
 - Overall height: 12.9 (0.507")
 - Internal width: 21.6 (0.85")
- Assembly:** A detailed view of the connector assembly, showing the internal components and the screwdriver handle.

CONDUCTOR
DIRECTION

M 1/1

A diagram showing a cable with a connector. The cable has a braided shield and a central conductor. The connector is a multi-pin connector. A key symbol is shown next to the cable, indicating the conductor direction. The key symbol is a small rectangle with a diagonal line and the text "M 1/1".

Technical drawing of a mechanical part, likely a bracket or support, showing dimensions in inches and millimeters. The drawing includes a top view and a side view.

Top View Dimensions:

- Overall width: $L1 + 10.8$ (inches) / $L1 + 0.425$ (mm)
- Distance from left edge to first vertical step: 3.4 (inches) / 0.134 (mm)
- Distance from second vertical step to right edge: 2.6 (inches) / 0.102 (mm)
- Distance from left edge to center of the first square hole: 5.4 (inches) / 0.212 (mm)
- Distance between the centers of the two square holes: 14.5 (inches) / 0.569 (mm)
- Distance from the center of the second square hole to the right edge: 5.4 (inches) / 0.212 (mm)

Side View Dimensions:

- Overall height: 9.6 (inches) / 0.376 (mm)
- Height of the top flange: 4.1 (inches) / 0.163 (mm)
- Height of the main body: 7.9 (inches) / 0.309 (mm)
- Height of the bottom flange: 3 (inches) / 0.118 (mm)

Other Features:

- The part has a central rectangular area with a dashed outline, containing four square holes arranged in a 2x2 grid.
- The bottom flange has a hatched area on the left side, labeled "support area for release lever".

P = 3.50 RASTER
PITCH

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.

24	80.5	3.169
23	77.0	3.032
22	73.5	2.894
21	70.0	2.756
20	66.5	2.618
19	63.0	2.480
18	59.5	2.343
17	56.0	2.205
16	52.5	2.067
15	49.0	1.929
14	45.5	1.791
13	42.0	1.654
12	38.5	1.516
11	35.0	1.378
10	31.5	1.240
9	28.0	1.102
8	24.5	0.965
7	21.0	0.827
6	17.5	0.689
5	14.0	0.551
4	10.5	0.413
3	7.0	0.276
2	3.5	0.138
n _{POLEZ}	L1 [mm]	L1 [inch]

ALLGEMEINGÜLTIGE KUNDENZEICHNUNG, AKTUELLER STAND NUR AUF ANFRAGE
GENERAL CUSTOMER DRAWING, TOPICAL VERSION ONLY IF REQUIRED

GENERAL TOLERANCE: DIN ISO 2768-m		Cat.no.: ..	
		103300/5 17.05.18 HELIS_MA 01	Weidmüller 
Modification		Drawing no. Issue n. Sheet 00 of 00 sheets	
		Date Drawn 02.09.2008 HELIS_MA Responsible AMANN_A Checked Approved LANG_T	BL 3.50/.. /180 BUCHSENSTECKER FEMALE PLUG <i>im Pruefung / Verification</i>
Scale: 5/1 Supersedes: .		Product file: BL 3.50 738	