

**BCF 3.81/14/180F SN OR BX****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

www.weidmueller.com

**Product image**

PUSH IN - Weidmüller's innovative connection system simplifies the wire connection process.

The benefits for users and applications:

- High packaging density due to very low component height. Simply insert the prepared wire - finished
- High component density with the compact SCDN / SCDN-THR two-tier pin header
- Simplified processing due to integrated push buttons for opening the clamping unit
- Intuitive handling – since the wire-entry area and handling area are clearly separated
- tool-free locking and releasing when using Weidmüller's patented release latch (LR)

The Weidmüller plug-in connectors, pitch 3.81 mm (0.15 inch), are compatible with the layout of customary plug-in connectors, can be coded and provide space for printing.

**General ordering data**

|              |  |
|--------------|--|
| Version      | PCB plug-in connector, female plug, 3.81 mm, Number of poles: 14, 180°, PUSH IN with actuator, Clamping range, max. : 1.5 mm², Box |
| Order No.    | <a href="#">1970730000</a>   |
| Type         | BCF 3.81/14/180F SN OR BX  |
| GTIN (EAN)   | 4032248680139  |
| Qty.         | 50 pc(s).  |
| Product data | IEC: 320 V / 17.5 A / 0.14 - 1.5 mm²<br>UL: 300 V / 10 A / AWG 26 - AWG 16   |
| Packaging    | Box  |

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## Technical data

## Dimensions and weights

|            |          |                 |            |
|------------|----------|-----------------|------------|
| Depth      | 22 mm    | Depth (inches)  | 0.866 inch |
| Height     | 7.9 mm   | Height (inches) | 0.311 inch |
| Width      | 63.73 mm | Width (inches)  | 2.509 inch |
| Net weight | 9.92 g   |                 |            |

## System Parameters

|  |                                     |                   |                             |
|--|-------------------------------------|-------------------|-----------------------------|
| Product family                               | OMNIMATE Signal - series BC/SC 3.81 |                   |                             |
| Type of connection                           | Field connection                    |                   |                             |
| Wire connection method                       | PUSH IN with actuator               |                   |                             |
| Pitch in mm (P)                              | 3.81 mm                             |                   |                             |
| Pitch in inches (P)                          | 0.15 "                              |                   |                             |
| Conductor outlet direction                   | 180°                                |                   |                             |
| Number of poles                              | 14                                  |                   |                             |
| L1 in mm                                     | 49.53 mm                            |                   |                             |
| L1 in inches                                 | 1.95 "                              |                   |                             |
| Number of rows                               | 1                                   |                   |                             |
| Pin series quantity                          | 1                                   |                   |                             |
| Rated cross-section                          | 1 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                                |                   |                             |
| Volume resistance                            | ≤5 mΩ                               |                   |                             |
| Can be coded                                 | Yes                                 |                   |                             |
| Stripping length                             | 9 mm                                |                   |                             |
| Screwdriver blade                            | 0.4 x 2.5                           |                   |                             |
| Screwdriver blade standard                   | DIN 5264                            |                   |                             |
| Plugging cycles                              | 25                                  |                   |                             |
| Plugging force/pole, max.                    | 8 N                                 |                   |                             |
| Pulling force/pole, max.                     | 7 N                                 |                   |                             |
| Tightening torque                            | Torque type                         | Screw flange      |                             |
|  | Usage information                   | Tightening torque | min. 0.15 Nm<br>max. 0.2 Nm |

## Material data

|                                       |             |                                       |                     |
|---------------------------------------|-------------|---------------------------------------|---------------------|
| Insulating material                   | PA 66 GF 30 | Colour                                | orange              |
| Colour chart (similar)                | RAL 2000    | Insulating material group             | II                  |
| Comparative Tracking Index (CTI)      | ≥ 550       | Insulation strength                   | ≥ 10 <sup>8</sup> Ω |
| UL 94 flammability rating             | V-0         | Contact material                      | Copper alloy        |
| Contact surface                       | tinned      | Layer structure of plug contact       | 4...8 µm Sn matt    |
| Storage temperature, min.             | -40 °C      | Storage temperature, max.             | 70 °C               |
| Operating temperature, min.           | -50 °C      | Operating temperature, max.           | 120 °C              |
| Temperature range, installation, min. | -25 °C      | Temperature range, installation, max. | 120 °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               |

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|--|--|------------------------------|-----------------------------|-------|
| 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, 0.25 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, 0.25 mm <sup>2</sup> min.       |  |                              |                             |       |
| w. wire end ferrule, DIN 46228 pt 1, 1.5 mm <sup>2</sup> max.        |  |                              |                             |       |
| 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                      | 0.5 mm <sup>2</sup>         |       |
|  | wire end ferrule                       | Stripping length             | nominal                     | 12 mm |
|  |  | Recommended wire-end ferrule | <a href="#">H0.5/16 OR</a>  |       |
|  |  | Stripping length             | nominal                     | 10 mm |
|  |  | Recommended wire-end ferrule | <a href="#">H0.5/10</a>     |       |
|  | Cross-section for conductor connection | Type                         | fine-wired                  |       |
|  |  | nominal                      | 0.75 mm <sup>2</sup>        |       |
|  | wire end ferrule                       | Stripping length             | nominal                     | 12 mm |
|  |  | Recommended wire-end ferrule | <a href="#">H0.75/16 W</a>  |       |
|  |  | Stripping length             | nominal                     | 10 mm |
|  |  | Recommended wire-end ferrule | <a href="#">H0.75/10</a>    |       |
|  | Cross-section for conductor connection | Type                         | fine-wired                  |       |
|  |  | nominal                      | 1 mm <sup>2</sup>           |       |
|  | wire end ferrule                       | Stripping length             | nominal                     | 12 mm |
|  |  | Recommended wire-end ferrule | <a href="#">H1.0/16D R</a>  |       |
|  |  | Stripping length             | nominal                     | 10 mm |
|  |  | Recommended wire-end ferrule | <a href="#">H1.0/10</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> |       |

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.

## 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)                             | 17.5 A                 | Rated current, min. number of poles (Tu=40°C)                         | 17.5 A           |
| Rated current, max. number of poles (Tu=40°C)                             | 16.3 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 76 A |

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## Technical data

## Rated data acc. to CSA

Institute (CSA)



Certificate No. (CSA)

200039-1121690

|                                   |  |
|-----------------------------------|--|
| Rated voltage (Use group B / CSA) | 300 V  |
| Rated voltage (Use group D / CSA) | 300 V  |
| Rated current (Use group C / CSA) | 11 A   |
| Wire cross-section, AWG, min.     | AWG 26   |
| Reference to approval values      | Specifications are maximum values, details - see approval certificate. |

|                                   |        |
|-----------------------------------|--------|
| Rated voltage (Use group C / CSA) | 50 V   |
| Rated current (Use group B / CSA) | 11 A   |
| Rated current (Use group D / CSA) | 11 A   |
| Wire cross-section, AWG, max.     | AWG 16 |

## Rated data acc. to UL 1059

Institute (cURus)



Certificate No. (cURus)

E60693

|                                       |  |
|---------------------------------------|--|
| Rated voltage (Use group B / UL 1059) | 300 V  |
| Rated current (Use group B / UL 1059) | 10 A   |
| Wire cross-section, AWG, min.         | AWG 26   |
| Reference to approval values          | Specifications are maximum values, details - see approval certificate. |

|                                       |        |
|---------------------------------------|--------|
| Rated voltage (Use group D / UL 1059) | 300 V  |
| Rated current (Use group D / UL 1059) | 10 A   |
| Wire cross-section, AWG, max.         | AWG 16 |

## Packing

|           |        |            |        |
|-----------|--------|------------|--------|
| Packaging | Box    | VPE length | 215 mm |
| VPE width | 140 mm | VPE height | 30 mm  |

## Type tests

|  |            |                    |
|--|------------|--------------------|
| Test: Misengagement (Non-interchangeability) | Test       | visual examination |
|  | 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 |

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## 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>• 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>• Rated current related to rated cross-section &amp; min. No. of poles.</li><li>• P on drawing = pitch</li><li>• Conductors suitable for connection: 1.5 mm<sup>2</sup> with wire-end ferrule with plastic collar, DIN 46 228/1, with a rated voltage of 125V/2.5 kV with III/3 or 250 V/2.5 kV with II/2</li><li>• Crimp shape A for wire-end ferrules with crimping tools PZ 1,5 (order no. 9005990000) or PZ 6/5 (order no. 9011460000) for larger wire cross-sections recommended.</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>• 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> |

## Approvals

Approvals



|                         |            |
|-------------------------|------------|
| ROHS                    | Conform    |
| UL File Number Search   | UL Website |
| Certificate No. (cURus) | E60693     |

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### Downloads

|   |  |
|---|--|
| Approval/Certificate/Document of Conformity | <a href="#">CB Certificate</a><br><a href="#">CB Testreport</a><br><a href="#">Declaration of the Manufacturer</a>   |
| Engineering Data                            | <a href="#">CAD data – STEP</a>  |
| User Documentation                          | <a href="#">BPZL_PUSH_IN_Connectors_BCF_3_81_EN</a>  |
| Catalogues                                  | <a href="#">Catalogues in PDF-format</a>   |
| Brochures                                   | <a href="#">FL DRIVES EN</a><br><a href="#">MB DEVICE MANUF. EN</a><br><a href="#">FL DRIVES DE</a><br><a href="#">FL BUILDING SAFETY EN</a><br><a href="#">FL APPL LED LIGHTING EN</a><br><a href="#">FL INDUSTR.CONTROLS EN</a><br><a href="#">FL MACHINE SAFETY EN</a><br><a href="#">FL HEATING ELECTR EN</a><br><a href="#">FL APPL INVERTER EN</a><br><a href="#">FL_BASE_STATION_EN</a><br><a href="#">FL ELEVATOR EN</a><br><a href="#">FL POWER SUPPLY EN</a><br><a href="#">FL 72H SAMPLE SER EN</a><br><a href="#">PO OMNIMATE EN</a><br><a href="#">PO OMNIMATE EN</a> |

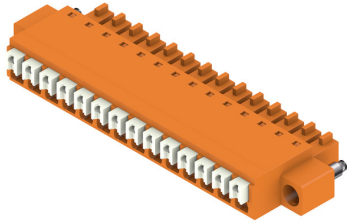
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## Drawings

## Product image



## Dimensional drawing



## Graph



## Graph



## Graph



## Product benefits



**Solid PUSH IN contact**  
 Safe and durable

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# Drawings

## Example of use





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WEIDMUELLER INTERFACE GmbH & Co.KG

MASSE OHNE TOLERANZ SIND KEINE PRUEFMASSE  
DIMS. WITHOUT TOLERANCE ARE NOT CONTROL DIMS.

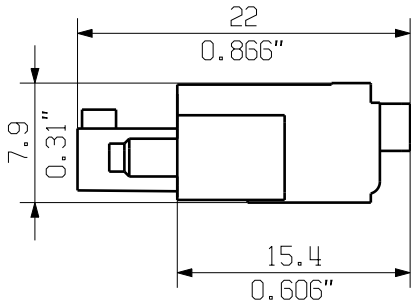
BCF 3.81/.../180 ...(2,3,4 POLE)



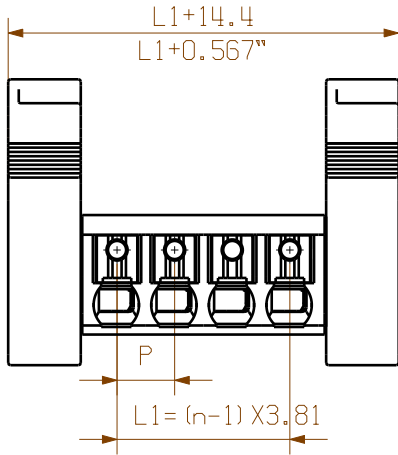
BCF 3.81/.../180 ...(5- 18 POLE)



BCF 3.81/.../180F ...



BCF 3.81/.../180LR ...



NOTE:  
n=NO OF POLES  
P=PITCH

KUNDENZEICHNUNG  
CUSTOMER DRAWING

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 occuring of electrical, mechanical, thermic and corrosive stress will be satisfied.

|    |         |           |
|----|---------|-----------|
| 18 | 64.77   | 2.550     |
| 17 | 60.96   | 2.400     |
| 16 | 57.15   | 2.250     |
| 15 | 53.34   | 2.100     |
| 14 | 49.53   | 1.950     |
| 13 | 45.72   | 1.800     |
| 12 | 41.91   | 1.650     |
| 11 | 38.10   | 1.500     |
| 10 | 34.29   | 1.350     |
| 9  | 30.48   | 1.200     |
| 8  | 26.67   | 1.050     |
| 7  | 22.86   | 0.900     |
| 6  | 19.05   | 0.750     |
| 5  | 15.24   | 0.600     |
| 4  | 11.43   | 0.450     |
| 3  | 7.62    | 0.300     |
| 2  | 3.81    | 0.150     |
| n  | L1 [mm] | L1 [inch] |

|                           |  |                             |  |                                   |  |
|---------------------------|--|-----------------------------|--|-----------------------------------|--|
| MAX. NRN./NOS. ?          |  | 55304/5<br>18.05.11 GE_G 00 |  | CAT.NO.: .                        |  |
| MODIFICATION              |  | NAME                        |  | C 40414 07                        |  |
| DRAWN 27.12.2006 XU_S     |  | DATE                        |  | DRAWING NO. SHEET 01 OF 08 SHEETS |  |
| RESPONSIBLE GE_G          |  | NAME                        |  | ISSUE NO.                         |  |
| CHECKED 03.06.2011 ZHOU_N |  | DATE                        |  | BCF 3.81/.../180... SN            |  |
| APPROVED XU_S             |  | NAME                        |  | BUCHSENLEISTE<br>SOCKET BLOCK     |  |
| SCALE: 2/1                |  | DATE                        |  | PRODUCT FILE: BCF 3.81            |  |
| SUPERSEDES: .             |  | DATE                        |  | 7072                              |  |