

**LLFS 7.50/08/90V 5.0SN BK BX****Weidmüller Interfaces GmbH & Co. KG**

Postfach 3030

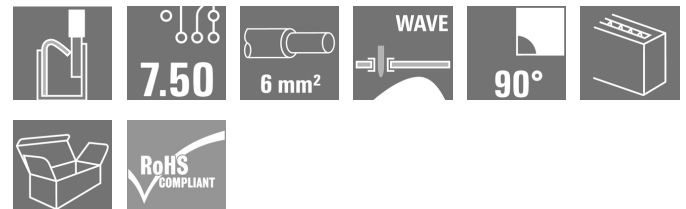
32760 Detmold

Tel. +49 5231 14-0

Fax. +49 5231 14-2083

info@weidmueller.com

www.weidmueller.com

**Product image**

**The sturdy, direct connection for extreme current and voltage requirements in all power electronics applications such as solar inverters, frequency converters, servo-controllers and power supplies.**

**General ordering data**

|              |   |
|--------------|---|
| Version      | Printed circuit board terminals, 7.50 mm, Number of poles: 8, 90°, Solder pin length (l): 5 mm, tinned, black, PUSH IN without actuator, Clamping range, max. : 6 mm <sup>2</sup> , Box |
| Order No.    | <a href="#">2473060000</a>  |
| Type         | LLFS 7.50/08/90V 5.0SN BK BX  |
| GTIN (EAN)   | 4050118658170   |
| Qty.         | 30 Stück  |
| Product data | IEC: 1000 V / 41 A / 0.5 - 6 mm <sup>2</sup><br>UL: 600 V / 37 A / AWG 24 - AWG 8   |
| Packaging    | Box   |

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## Technische Daten

### Dimensions and weights

|                          |            |                 |            |
|--------------------------|------------|-----------------|------------|
| Depth                    | 20.05 mm   | Depth (inches)  | 0.789 inch |
| Height                   | 30.56 mm   | Height (inches) | 1.203 inch |
| Height of lowest version | 25.56 mm   | Width           | 61 mm      |
| Width (inches)           | 2.402 inch | Net weight      | 32.6 g     |

### Temperatures

|                             |        |                             |        |
|-----------------------------|--------|-----------------------------|--------|
| Operating temperature, min. | -40 °C | Operating temperature, max. | 120 °C |
|-----------------------------|--------|-----------------------------|--------|

### System parameters

|  |                            |  |                          |
|--|----------------------------|--|--------------------------|
| Product family                             | OMNIMATE Power - series LL | Wire connection method                       | PUSH IN without actuator |
| Mounting onto the PCB                      | THT solder connection      | Conductor outlet direction                   | 90°                      |
| Pitch in mm (P)                            | 7.5 mm                     | Pitch in inches (P)                          | 0.295 inch               |
| Number of poles                            | 8                          | Pin series quantity                          | 1                        |
| Fitted by customer                         | No                         | Number of rows                               | 1                        |
| Solder pin length (l)                      | 5 mm                       | Solder pin dimensions                        | d = 1.5 mm               |
| Solder eyelet hole diameter (D)            | 2 mm                       | Solder eyelet hole diameter tolerance (D)    | + 0,1 mm                 |
| Number of solder pins per pole             | 1                          | Stripping length                             | 12 mm                    |
| L1 in mm                                   | 52.5 mm                    | L1 in inches                                 | 2.065 inch               |
| Touch-safe protection acc. to DIN VDE 0470 | IP 20                      | Touch-safe protection acc. to DIN VDE 57 106 | Safe from finger touch   |
| Protection degree                          | IP20                       |  |                          |

### Material data

|                                      |                     |                             |        |
|--------------------------------------|---------------------|-----------------------------|--------|
| Insulating material                  | Wemid (PA)          | Colour                      | black  |
| Colour chart (similar)               | RAL 9011            | Insulating material group   | I      |
| Insulation strength                  | ≥ 10 <sup>8</sup> Ω | UL 94 flammability rating   | V-0    |
| Contact material                     | E-Cu                | Contact surface             | tinned |
| Layer structure of solder connection | 4...10 μ Sn matt    | Storage temperature, min.   | -40 °C |
| Storage temperature, max.            | 70 °C               | Operating temperature, min. | -40 °C |
| Operating temperature, max.          | 120 °C              |                             |        |

### Conductors suitable for connection

|  |                      |
|--|----------------------|
| Clamping range, min.   | 0.25 mm <sup>2</sup> |
| Clamping range, max.   | 6 mm <sup>2</sup>    |
| Solid, min. H05(07) V-U  | 0.5 mm <sup>2</sup>  |
| Solid, max. H05(07) V-U  | 6 mm <sup>2</sup>    |
| Flexible, min. H05(07) V-K   | 0.5 mm <sup>2</sup>  |
| Flexible, max. H05(07) V-K   | 6 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, 6 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, 6 mm <sup>2</sup> max.          |                      |

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|  |  |                             |                     |
|--|--|-----------------------------|---------------------|
| Clampable conductor                    | Cross-section for conductor connection | Type                        | fine-wired          |
|  |  | nominal                     | 0.5 mm <sup>2</sup> |
| wire end ferrule                       | Stripping length                       | nominal                     | 14 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H0.5/18 OR</a>  |                     |
| Cross-section for conductor connection | Type                                   | fine-wired                  |                     |
|  | nominal                                | 1 mm <sup>2</sup>           |                     |
| wire end ferrule                       | Stripping length                       | nominal                     | 15 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H1.0/18 GE</a>  |                     |
| Cross-section for conductor connection | Type                                   | fine-wired                  |                     |
|  | nominal                                | 1.5 mm <sup>2</sup>         |                     |
| wire end ferrule                       | Stripping length                       | nominal                     | 15 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H1.5/18D SW</a> |                     |
|  | Stripping length                       | nominal                     | 12 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H1.5/12</a>     |                     |
| Cross-section for conductor connection | Type                                   | fine-wired                  |                     |
|  | nominal                                | 0.75 mm <sup>2</sup>        |                     |
| wire end ferrule                       | Stripping length                       | nominal                     | 14 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H0.75/18 W</a>  |                     |
| Cross-section for conductor connection | Type                                   | fine-wired                  |                     |
|  | nominal                                | 2.5 mm <sup>2</sup>         |                     |
| wire end ferrule                       | Stripping length                       | nominal                     | 14 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H2.5/19D BL</a> |                     |
|  | Stripping length                       | nominal                     | 12 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H2.5/12</a>     |                     |
| Cross-section for conductor connection | Type                                   | fine-wired                  |                     |
|  | nominal                                | 4 mm <sup>2</sup>           |                     |
| wire end ferrule                       | Stripping length                       | nominal                     | 12 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H4.0/12</a>     |                     |
|  | Stripping length                       | nominal                     | 14 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H4.0/20D GR</a> |                     |
| Cross-section for conductor connection | Type                                   | fine-wired                  |                     |
|  | nominal                                | 6 mm <sup>2</sup>           |                     |
| wire end ferrule                       | Stripping length                       | nominal                     | 14 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H6.0/20 SW</a>  |                     |
|  | Stripping length                       | nominal                     | 12 mm               |
|  | Recommended wire-end ferrule           | <a href="#">H6.0/12</a>     |                     |

Reference text Length of ferrules is to be chosen depending on the product and the rated voltage., The outside diameter of the plastic collar should not be larger than the pitch (P)

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**Technische Daten**


**Rated data acc. to IEC**

|   |                                  |   |         |
|---|----------------------------------|---|---------|
| tested acc. to standard   | In accordance with IEC 60947-7-1 | Rated current, min. number of poles (Tu=20°C)                         | 41 A    |
| Rated current, max. number of poles (Tu=20°C)                             | 34 A                             | Rated current, min. number of poles (Tu=40°C)                         | 37 A    |
| Rated current, max. number of poles (Tu=40°C)                             | 29 A                             | Rated voltage for surge voltage class / pollution degree II/2         | 1,000 V |
| Rated voltage for surge voltage class / pollution degree III/2            | 1,000 V                          | Rated voltage for surge voltage class / pollution degree III/3        | 1,000 V |
| Rated impulse voltage for surge voltage class/ pollution degree II/2      | 8 kV                             | Rated impulse voltage for surge voltage class/ pollution degree III/2 | 8 kV    |
| Rated impulse voltage for surge voltage class/ contamination degree III/3 | 8 kV                             |   |         |

**Rated data acc. to CSA**

|                                   |        |                                   |       |
|-----------------------------------|--------|-----------------------------------|-------|
| Rated voltage (Use group B / CSA) | 600 V  | Rated voltage (Use group C / CSA) | 600 V |
| Rated voltage (Use group D / CSA) | 600 V  | Rated current (Use group B / CSA) | 37 A  |
| Rated current (Use group C / CSA) | 37 A   | Rated current (Use group D / CSA) | 5 A   |
| Wire cross-section, AWG, min.     | AWG 24 | Wire cross-section, AWG, max.     | AWG 8 |

**Rated data acc. to UL 1059**

|                                       |   |                                       |        |
|---------------------------------------|---|---------------------------------------|--------|
| Institute (cURus)                     |  | Certificate No. (cURus)               | E60693 |
| Rated voltage (Use group B / UL 1059) | 600 V   | Rated voltage (Use group C / UL 1059) | 600 V  |
| Rated voltage (Use group D / UL 1059) | 600 V   | Rated current (Use group B / UL 1059) | 37 A   |
| Rated current (Use group C / UL 1059) | 37 A  | Rated current (Use group D / UL 1059) | 5 A    |
| Wire cross-section, AWG, min.         | AWG 24  | Wire cross-section, AWG, max.         | AWG 8  |
| Reference to approval values          | Specifications are maximum values, details - see approval certificate.              |                                       |        |

**Packing**

|           |        |            |        |
|-----------|--------|------------|--------|
| Packaging | Box    | VPE length | 210 mm |
| VPE width | 210 mm | VPE height | 45 mm  |

**Type tests**

|                              |            |  |
|------------------------------|------------|--|
| Test: Durability of markings | Test       | mark of origin, type identification, type of material, pitch, durability |
|                              | Evaluation | available  |

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IEC 60999-1 section 7 and 9.1 / 11.99, IEC 60947-1 section 8.2.1.5, IEC 603.11

info@weidmueller.com

Test: Clampable cross section

Standard

Conductor type

Type of conductor and conductor cross-section solid 0.5 mm<sup>2</sup>

Type of conductor and conductor cross-section stranded 0.5 mm<sup>2</sup>

Type of conductor and conductor cross-section solid 6 mm<sup>2</sup>

Type of conductor and conductor cross-section stranded 6 mm<sup>2</sup>

Type of conductor and conductor cross-section AWG 24/19

Type of conductor and conductor cross-section AWG 24/1

Type of conductor and conductor cross-section AWG 10/1

Type of conductor and conductor cross-section AWG 10/19

Type of conductor and conductor cross-section H07V-K10

Evaluation

passed

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Test for damage to and accidental loosening of conductors

|                |  |           |
|----------------|--|-----------|
| Standard       | IEC 60999-1 section 9.4 / 11.99, IEC 60999-1 section 9.5 / 11.99<br>info@weidmueller.com |           |
| Requirement    | 0.3 kg   |           |
| Conductor type | Type of conductor and conductor cross-section  | H05V-K0.5 |
|                | Type of conductor and conductor cross-section  | H05V-U0.5 |
| Evaluation     | passed   |           |
| Requirement    | 0.7 kg   |           |
| Conductor type | Type of conductor and conductor cross-section  | H07V-K2.5 |
|                | Type of conductor and conductor cross-section  | H07V-U2.5 |
| Evaluation     | passed   |           |
| Requirement    | 0.9 kg   |           |
| Conductor type | Type of conductor and conductor cross-section  | H07V-K4   |
|                | Type of conductor and conductor cross-section  | H07V-U4.0 |
| Evaluation     | passed   |           |
| Requirement    | 1.4 kg   |           |
| Conductor type | Type of conductor and conductor cross-section  | H07V-K6   |
|                | Type of conductor and conductor cross-section  | H07V-U6   |
| Evaluation     | passed   |           |

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|                |   |                                    |                      |
|----------------|---|------------------------------------|----------------------|
| Pull-out test  | Standard                                      | DIN EN 60999-1 section 9.5 / 12.00 |                      |
|                | Requirement                                   | ≥20 N info@weidmueller.com         |                      |
| Conductor type | Type of conductor and conductor cross-section | H05V-K0.5                          | info@weidmueller.com |
|                | Type of conductor and conductor cross-section | H05V-U0.5                          |                      |
| Evaluation     | passed  |                                    |                      |
| Requirement    | ≥50 N   |                                    |                      |
| Conductor type | Type of conductor and conductor cross-section | H07V-K2.5                          |                      |
|                | Type of conductor and conductor cross-section | H07V-U2.5                          |                      |
| Evaluation     | passed  |                                    |                      |
| Requirement    | ≥60 N   |                                    |                      |
| Conductor type | Type of conductor and conductor cross-section | H07V-K4                            |                      |
|                | Type of conductor and conductor cross-section | H07V-U4.0                          |                      |
| Evaluation     | passed  |                                    |                      |
| Requirement    | ≥80 N   |                                    |                      |
| Conductor type | Type of conductor and conductor cross-section | H07V-K6                            |                      |
|                | Type of conductor and conductor cross-section | H07V-U6                            |                      |
| Evaluation     | passed  |                                    |                      |

**Classifications**

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 6.0    | EC002643    | ETIM 7.0    | EC002643    |
| ETIM 8.0    | EC002643    | ECLASS 9.0  | 27-44-04-01 |
| ECLASS 9.1  | 27-44-04-01 | ECLASS 10.0 | 27-44-04-01 |
| ECLASS 11.0 | 27-46-01-01 | ECLASS 12.0 | 27-46-01-01 |

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## Technische Daten

### 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>• 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>• The single-position PCB terminal block can be used for voltages up to 1500 V (DC) and 1000 V (AC). The relevant device standard and the appropriate required clearances and creepage distances should be observed in the application</li> <li>• Long term storage of the product with average temperature of 50 °C and average humidity 70%, 36 months</li> </ul> |

### Approvals

Approvals



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

### Downloads

|                             |   |
|-----------------------------|---|
| Engineering Data            | <a href="#">CAD data – STEP</a>   |
| Product Change Notification | <a href="#">Change of locking system to LLFS 7.50/90 - DE</a><br><a href="#">Change of locking system to LLFS 7.50/90 - EN</a><br><a href="#">20210909 Color Change of Actuator to LLF(S) and LUF(S) Family</a><br><a href="#">20210909 LLF(S) und LUF(S) Familie - Farbänderung des Betätigungselementes</a><br><a href="#">20220112 Änderung der LLFS Abdeckplatte</a><br><a href="#">20220112 Change of Cover Plate to LLFS 90</a> |
| User Documentation          | <a href="#">Assembly instruction Montageanleitung LLFS LUFS EN DE</a>   |
| Catalogues                  | <a href="#">Catalogues in PDF-format</a>  |



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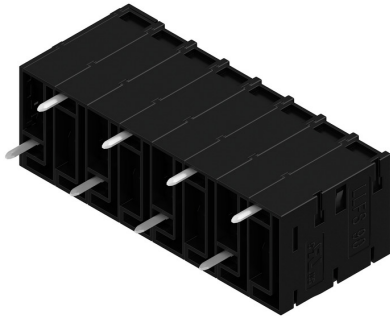
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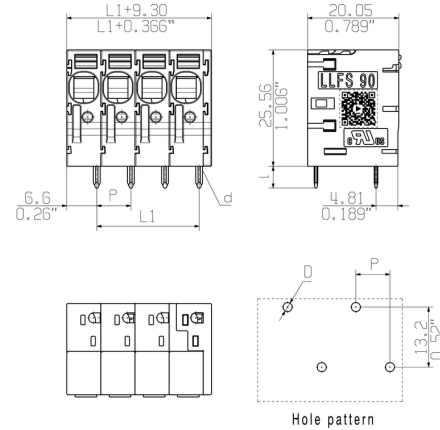
Fax. +49 5231 14-2083

Zeichnungen

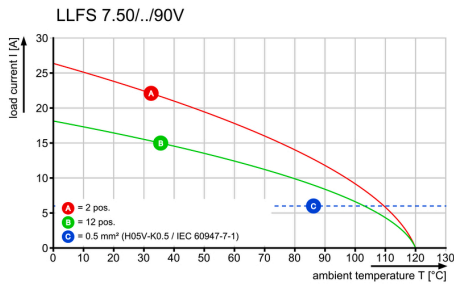
Product image



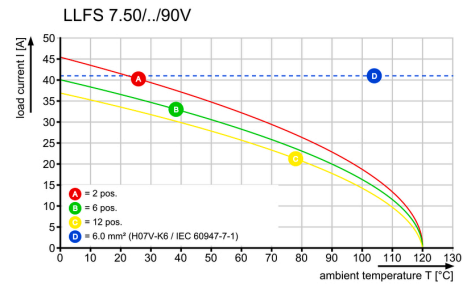
Dimensional drawing [info@weidmueller.com](mailto:info@weidmueller.com)



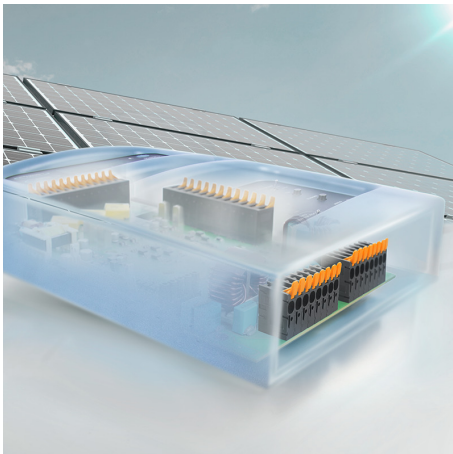
Derating curve



Derating curve

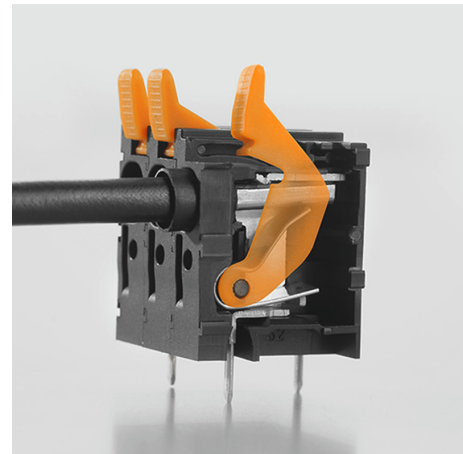


Product benefits



Power up to UL 600 V  
Offset solder pins

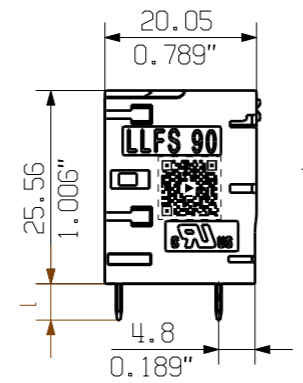
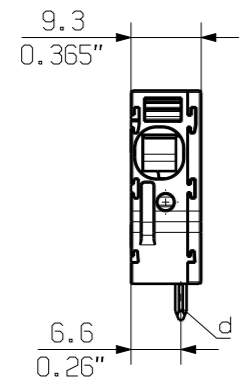
Product benefits



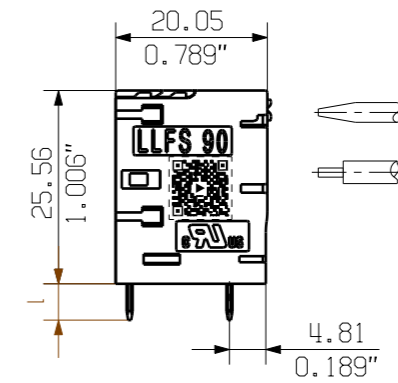
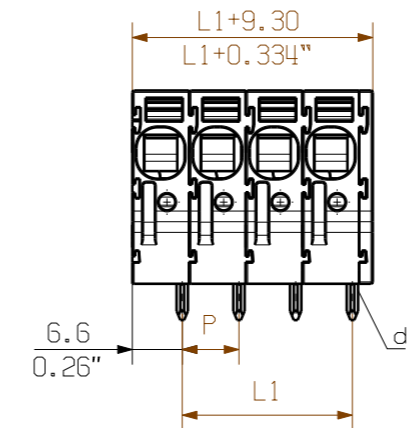
Tool-free wiring  
Top contact security

General customer drawing, topical version only if required

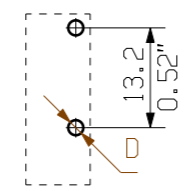
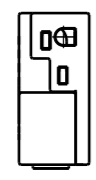
10



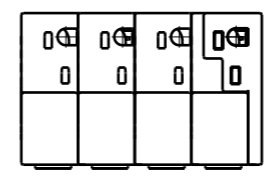
Screwdriver and conductor direction



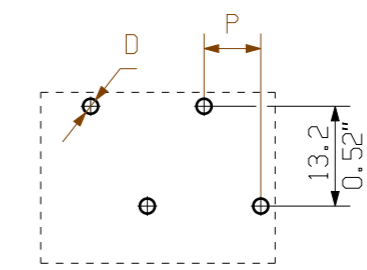
Screwdriver and conductor direction



Hole pattern

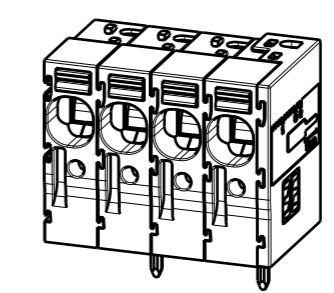
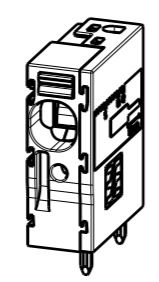


Pole: 1 2 3 4...



Pole: 1 2 3 4...

Hole pattern



|         |         |           |
|---------|---------|-----------|
| 12      | 82.50   | 3.248     |
| 11      | 75.00   | 2.953     |
| 10      | 67.50   | 2.657     |
| 9       | 60.00   | 2.362     |
| 8       | 52.50   | 2.067     |
| 7       | 45.00   | 1.772     |
| 6       | 37.50   | 1.476     |
| 5       | 30.00   | 1.181     |
| 4       | 22.50   | 0.886     |
| 3       | 15.00   | 0.591     |
| 2       | 7.50    | 0.295     |
| n Poles | L1 [mm] | L1 [inch] |

P = 7.50  
0.295" (Pitch)  
D = Ø2 +0.1  
0.079"  
d = 1.5x0.8  
0.059"x0.031"  
l = 5.0 +0.2 -0.6  
0.197"

For the mounting of PCBs, it should be noted that the rated data relates only to the PCB components alone. The necessary creepage and clearance paths must be observed in connection with the respective applicant in accordance to IEC 60664-1 (VDE 0110). The current-carrying capacity and pitch tolerance is to be determined according to DIN IEC 60326-3 very fine.

Weidmüller PCB components are tested to the IEC 60947-7-4 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.



|  |              |  |  |
|--|--------------|--|--|
| General Tolerances: <input type="checkbox"/> WN700144-W.. <input type="checkbox"/> WN 212010 <input checked="" type="checkbox"/> ISO 2768-mK |              | Tolerances ISO 8015  |  |
| Changes: EC00005454  |              | 1  |  |
| Mat. No. (SAP) 2473020000  |              |  |  |
| <b>Drawings Assembly</b>   |              |  |  |
| Drawn  | Xiang, Keqin |  |  |
| Responsible  | Xiang, Keqin |  |  |
| Approved   | Xu, Shary    |  |  |
|  |              | 18.01.2022   |  |
|  |              | <b>LLFS 7.50/.../90 ...</b><br>PCB TERMINAL<br>LEITERPLATTENKLEMME |  |

**61340**  
Drawing no. **10**  
Scale: 2:1 Sheet 2 / 4

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## Recommended wave soldering profiles

**Weidmüller Interface GmbH & Co. KG**  
 Klängenbergstraße 16  
 D-32758 Detmold  
 Germany  
 Fon: +49 5231 14-0  
 Fax: +49 5231 14-292083  
 www.weidmueller.com

### Single Wave:



### Double Wave:



### Wave soldering profiles

Wired connection elements should be processed in accordance with the DIN EN 61760-1 standard. We have included two recommendations for practical wave soldering profiles, with which Weidmüller PCB terminals and connectors are qualified.

When choosing a suitable profile for your application, the following factors also need to be considered:

- PCB thickness
- Proportion of Cu in the layers
- Single/double-sided assembly
- Product range
- Heating and cooling rates

The single and double wave profiles each indicate the recommended operating range, including the maximum soldering temperature of 260°C. In practice, the maximum soldering temperature is quite often well below the above maximum profile.