

LLFS 7.50/05/180V 5.0SN BK BX

Weidmüller Interfaces GmbH & Co. KG

Postfach 3030

32760 Detmold

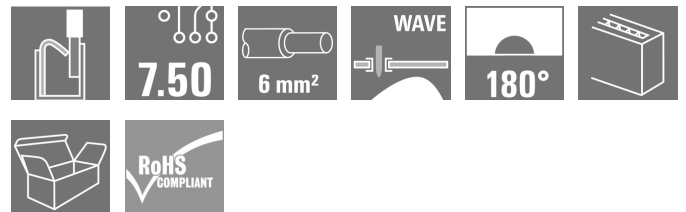
Tel. +49 5231 14-0

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: 5, 180°, Solder pin length (l): 5 mm, tinned, black, PUSH IN without actuator, Clamping range, max. : 6 mm², Box |
| Order No. | 2491650000 |
| Type | LLFS 7.50/05/180V 5.0SN BK BX |
| GTIN (EAN) | 4050118607826 |
| Qty. | 50 Stück |
| Product data | IEC: 1000 V / 41 A / 0.5 - 6 mm² UL: 600 V / 37 A / AWG 24 - AWG 8 |
| Packaging | Box |

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Technische Daten

Dimensions and weights

| | | | |
|--------------------------|------------|-----------------|------------|
| Depth | 18.5 mm | Depth (inches) | 0.728 inch |
| Height | 29.15 mm | Height (inches) | 1.148 inch |
| Height of lowest version | 24.15 mm | Width | 46.8 mm |
| Width (inches) | 1.843 inch | Net weight | 18.01 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 | 180° |
| Pitch in mm (P) | 7.5 mm | Pitch in inches (P) | 0.295 inch |
| Number of poles | 5 | 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 | 37.5 mm | L1 in inches | 1.476 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 ⁸ 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 ² |
| Clamping range, max. | 6 mm ² |
| Wire connection cross section AWG, min. | AWG 24 |
| Wire connection cross section AWG, max. | AWG 8 |
| Solid, min. H05(07) V-U | 0.5 mm ² |
| Solid, max. H05(07) V-U | 6 mm ² |
| Stranded, min. H07V-R | 0.5 mm ² |
| Flexible, min. H05(07) V-K | 0.5 mm ² |
| Flexible, max. H05(07) V-K | 6 mm ² |
| w. plastic collar ferrule, DIN 46228 pt 4, 0.25 mm ² min. | |
| w. plastic collar ferrule, DIN 46228 pt 4, 6 mm ² max. | |
| w. wire end ferrule, DIN 46228 pt 1, 0.25 mm ² min. | |
| w. wire end ferrule, DIN 46228 pt 1, 6 mm ² max. | |

Erstellungs-Datum May 31, 2023 1:53:14 PM CEST

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

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) | 32 A | Rated current, min. number of poles (Tu=40°C) | 38 A |
| Rated current, max. number of poles (Tu=40°C) | 28 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 |

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 | 220 mm |
| VPE width | 211 mm | VPE height | 47 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

Type of conductor and conductor cross-section solid 0.5 mm²

Type of conductor and conductor cross-section stranded 0.5 mm²

Type of conductor and conductor cross-section solid 6 mm²

Type of conductor and conductor cross-section stranded 6 mm²

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

Test: Clampable cross section

Standard

Conductor type

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 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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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 variants on request
 - Rated current related to rated cross-section & min. No. of poles.
 - 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.
 - The test point can only be used as potential-pickup point.
 - 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
 - Long term storage of the product with average temperature of 50 °C and average humidity 70%, 36 months

Approvals

Approvals



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

Downloads

| | |
|-----------------------------|---|
| Engineering Data | CAD data – STEP |
| Product Change Notification | 20200806 Montageoptimierung LLFS 7.50180 20200806 Assembly optimization to LLFS 7.50180 20210909 Color Change of Actuator to LLF(S) and LUF(S) Family 20210909 LLF(S) und LUF(S) Familie - Farbänderung des Betätigungselementes |
| User Documentation | Assembly instruction Montageanleitung_LLFS_LUFS_EN_DE |
| Catalogues | Catalogues in PDF-format |

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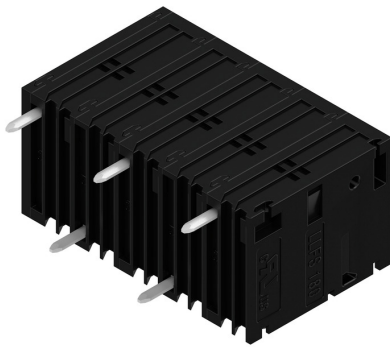
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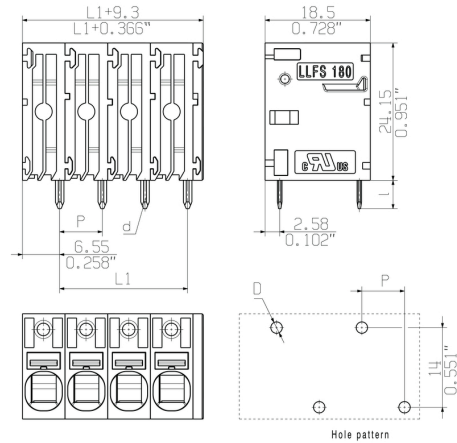
Fax. +49 5231 14-2083

Zeichnungen

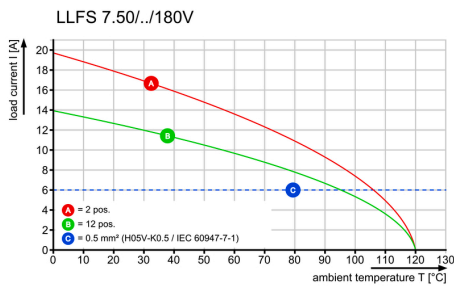
Product image



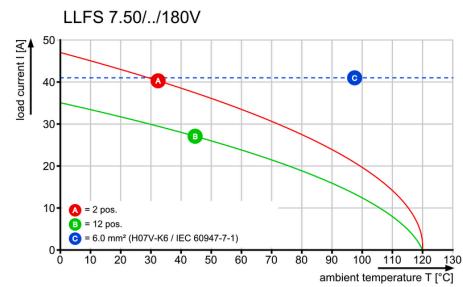
Dimensional drawing info@weidmueller.com



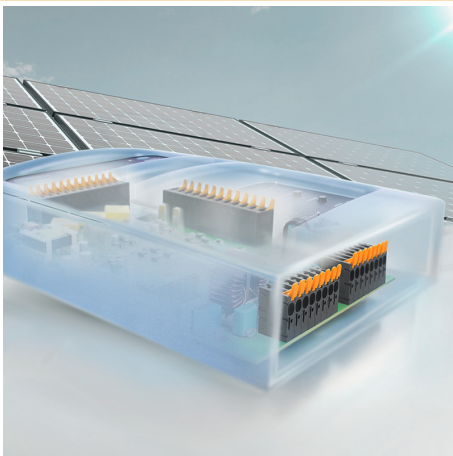
Derating curve



Derating curve

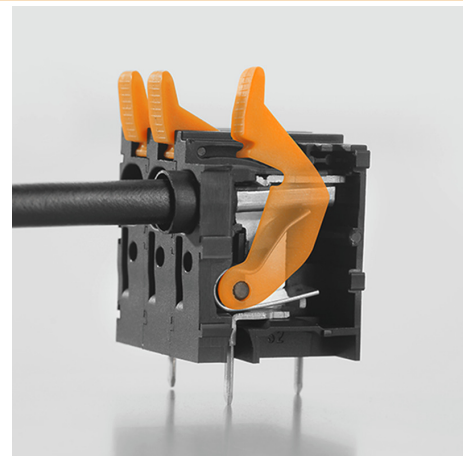


Product benefits



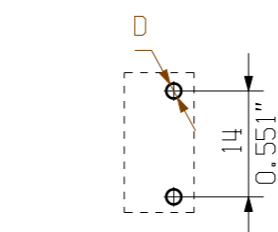
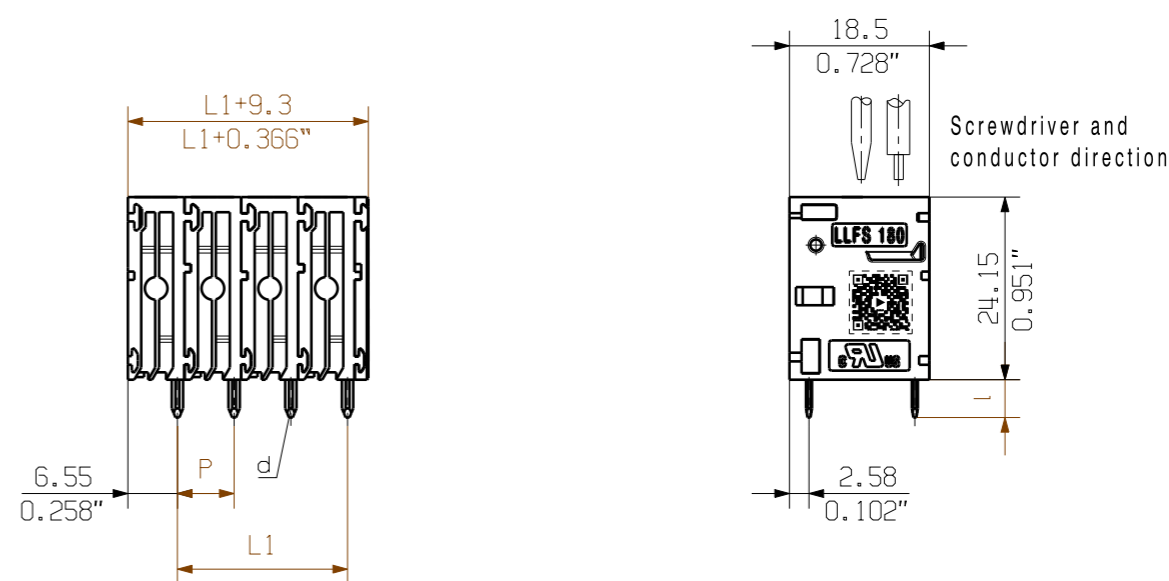
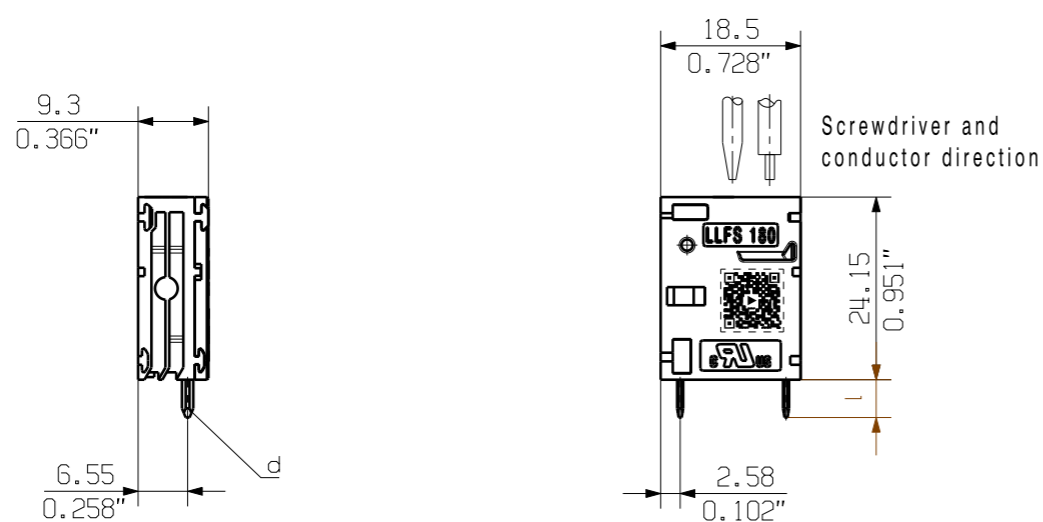
Power up to UL 600 V
Offset solder pins

Product benefits

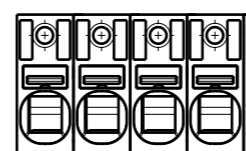


Tool-free wiring
Top contact security

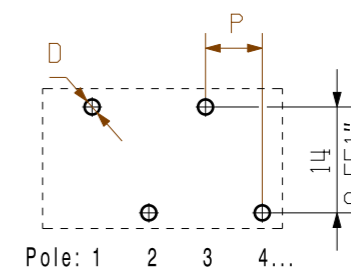
General customer drawing, topical version only if required



Hole pattern



Pole: 1 2 3 4...



Hole pattern

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 tolerance:
DIN ISO 2768-mK

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"

| | | |
|---------|---------|-----------|
| 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] |

| | | | | | | | | |
|-----------------------------|------------------|--|---------------------------|---|-------------------------------|--|------------|--------------|
| | EC00000693 | 01 | Prim PLM Part No.: 337396 | | Prim ERP Part No.: 2491640000 | | | |
| | First Issue Date | Max. nos. | | | | | | |
| 22.09.2016 | Modification | | | | | | | |
| | | Date | Name | LLFS 7.50/.../180 ... LEITERPLATTENKLEMME PCB TERMINAL | | | | |
| Scale: 1/1 | | Size: A3 | Drawn | | | | 28.04.2019 | Xiang, Keqin |
| Drawings Assembly | | Approved | 29.04.2019 | | | | Xu, Shary | |
| Product file: 7416 LLF 7.50 | | Drawing no. 64139 Issue no. 6 Sheet 01 of 01 sheets | | | | | | |

Recommended wave soldering profiles

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 Germany
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 Fax: +49 5231 14-292083
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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.