

**LM2N 3.50/22/90 3.2SN OR BX****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

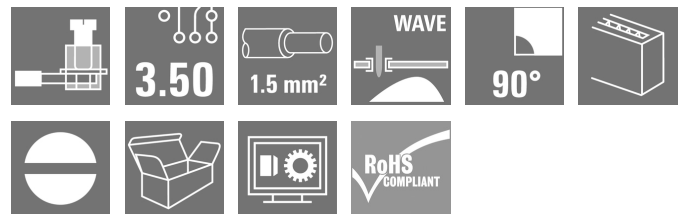
D-32758 Detmold

Germany

[www.weidmueller.com](http://www.weidmueller.com)**Product image**

Similar to illustration

Small, compact PCB terminal or -tier PCB terminal with proven clamping yoke connection and 3.5 mm pitch. Suitable for conductor cross-sections up to 1.5 mm<sup>2</sup>.

**General ordering data**

|              |  |
|--------------|--|
| Version      | Printed circuit board terminals, 3.50 mm, Number of poles: 22, 90°, Solder pin length (l): 3.2 mm, tinned, orange, Clamping yoke connection, Clamping range, max. : 2.08 mm <sup>2</sup> , Box |
| Order No.    | <a href="#">1703790000</a>   |
| Type         | LM2N 3.50/22/90 3.2SN OR BX  |
| GTIN (EAN)   | 4008190910860  |
| Qty.         | 25 pc(s).  |
| Product data | IEC: 320 V / 13 A / 0.5 - 1.5 mm <sup>2</sup><br>UL: 300 V / 10 A / AWG 28 - AWG 14  |
| Packaging    | Box  |

Creation date July 3, 2024 5:49:13 AM CEST

Catalogue status 29.06.2024 / We reserve the right to make technical changes.

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## Technical data

## Dimensions and weights

|                          |            |                 |            |
|--------------------------|------------|-----------------|------------|
| Depth                    | 16.75 mm   | Depth (inches)  | 0.659 inch |
| Height                   | 27.3 mm    | Height (inches) | 1.075 inch |
| Height of lowest version | 24.1 mm    | Width           | 40.85 mm   |
| Width (inches)           | 1.608 inch | Net weight      | 17 g       |

## System parameters

|   |                             |  |                          |
|---|-----------------------------|--|--------------------------|
| Product family                                    | OMNIMATE Signal - series LM | Wire connection method                       | Clamping yoke connection |
| Mounting onto the PCB                             | THT solder connection       | Conductor outlet direction                   | 90°                      |
| Pitch in mm (P)                                   | 3.5 mm                      | Pitch in inches (P)                          | 0.138 "                  |
| Number of poles                                   | 22                          | Pin series quantity                          | 2                        |
| Fitted by customer                                | Yes                         | Number of rows                               | 2                        |
| Max. adjacent poles per row                       | 24                          | Solder pin length (l)                        | 3.2 mm                   |
| Solder pin dimensions                             | 1.0 x 0.6 mm                | Solder eyelet hole diameter (D)              | 1.3 mm                   |
| Solder eyelet hole diameter tolerance (D)+ 0,1 mm |                             | Number of solder pins per pole               | 1                        |
| Screwdriver blade                                 | 0.4 x 2.5                   | Screwdriver blade standard                   | DIN 5264                 |
| Tightening torque, min.                           | 0.2 Nm                      | Tightening torque, max.                      | 0.2 Nm                   |
| Clamping screw                                    | M 2                         | Stripping length                             | 5 mm                     |
| L1 in mm  | 35 mm                       | L1 in inches                                 | 1.378 "                  |
| 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                        | Volume resistance                            | 3.60 mΩ                  |

## Material data

|                                       |                                  |                                       |        |
|---------------------------------------|----------------------------------|---------------------------------------|--------|
| Insulating material                   | PA                               | Colour                                | orange |
| Colour chart (similar)                | RAL 2000                         | Insulating material group             | I      |
| Comparative Tracking Index (CTI)      | ≥ 600                            | UL 94 flammability rating             | V-2    |
| Contact material                      | Cu-alloy                         | Contact surface                       | tinned |
| Coating                               | 1-3 µm Ni, 4-6 µm SN             | Tinning type                          | matt   |
| Layer structure of solder connection  | 1.5...3 µm Ni / 4...6 µm Sn matt | Storage temperature, min.             | -40 °C |
| Storage temperature, max.             | 70 °C                            | Operating temperature, min.           | -50 °C |
| Operating temperature, max.           | 100 °C                           | Temperature range, installation, min. | -25 °C |
| Temperature range, installation, max. | 100 °C                           |                                       |        |

## Conductors suitable for connection

|  |                      |
|--|----------------------|
| Clamping range, min.   | 0.08 mm <sup>2</sup> |
| Clamping range, max.   | 2.08 mm <sup>2</sup> |
| Wire connection cross section AWG, min.                              | AWG 28               |
| Wire connection cross section AWG, max.                              | AWG 14               |
| Solid, min. H05(07) V-U  | 0.5 mm <sup>2</sup>  |
| Solid, max. H05(07) V-U  | 1.5 mm <sup>2</sup>  |
| Flexible, min. H05(07) V-K   | 0.5 mm <sup>2</sup>  |
| Flexible, max. H05(07) V-K   | 1.5 mm <sup>2</sup>  |
| w. plastic collar ferrule, DIN 46228 pt 4, 0.5 mm <sup>2</sup> min.  |                      |
| w. plastic collar ferrule, DIN 46228 pt 4, 0.75 mm <sup>2</sup> max. |                      |
| Plug gauge in accordance with EN 60999 a x b; ø                      | 2.4 mm x 1.5 mm      |

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## Technical data

|                     |  |                              |                            |      |  |
|---------------------|--|------------------------------|----------------------------|------|--|
| Clampable conductor | Cross-section for conductor connection   | Type                         | fine-wired                 |      |  |
|                     |  | nominal                      | 0.75 mm²                   |      |  |
|                     | wire end ferrule   | Stripping length             | nominal                    | 8 mm |  |
|                     |  | Recommended wire-end ferrule | <a href="#">H0.75/12 W</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) |                              |                            |      |  |


## Rated data acc. to IEC

|   |                        |   |                  |
|---|------------------------|---|------------------|
| tested acc. to standard   | IEC 60664-1, IEC 61984 | Rated current, min. number of poles (Tu=20°C)                         | 13 A             |
| Rated current, max. number of poles (Tu=20°C)                             | 12 A                   | Rated current, min. number of poles (Tu=40°C)                         | 11 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 72 A |

## Rated data acc. to CSA

|                                   |   |                                   |                |
|-----------------------------------|---|-----------------------------------|----------------|
| Institute (CSA)                   |  | Certificate No. (CSA)             | 154685-1202192 |
| 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         |
| Reference to approval values      | Specifications are maximum values, details - see approval certificate.              |                                   |                |

## 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 | 185 mm |
| VPE width | 108 mm | VPE height | 39 mm  |

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## Technical data

## Classifications

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 6.0    | EC002643    | ETIM 7.0    | EC002643    |
| ETIM 8.0    | EC002643    | ETIM 9.0    | 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 | ECLASS 13.0 | 27-46-01-01 |

## Environmental Product Compliance

REACH SVHC

/

## 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.
- Max. outer diameter of the conductor: 2.9 mm
- 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 maximum humidity 70%, 36 months

## Approvals

Approvals



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

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formity[Declaration of the Manufacturer](#)

Engineering Data

[CAD data – STEP](#)

Catalogues

[Catalogues in PDF-format](#)

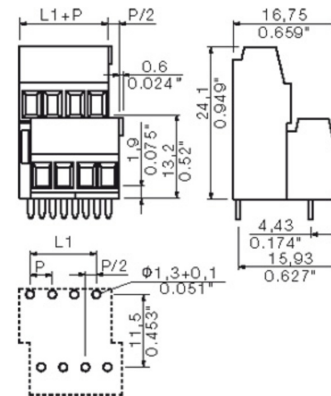
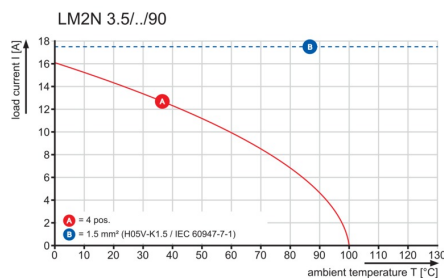
Brochures

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**Drawings**
**Dimensional drawing**

**Graph**


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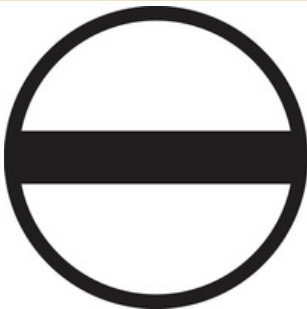
Germany

[www.weidmueller.com](http://www.weidmueller.com)**Accessories****Slotted screwdriver**

Slotted screwdriver with rounded blade SD DIN 5265, ISO 2380/2, output to DIN 5264, ISO 2380/1. ChromTop tip, SoftFinish grip

**General ordering data**

|            |                            |                          |
|------------|----------------------------|--------------------------|
| Type       | SDS 0.4X2.5X75             | Version                  |
| Order No.  | <a href="#">9009030000</a> | Screwdriver, Screwdriver |
| GTIN (EAN) | 4032248266944              |                          |
| Qty.       | 1 pc(s).                   |                          |

**Slotted screwdriver**

VDE insulated slot-head screwdriver, SDI DIN 7437, ISO 2380/2, drive output acc. to DIN 5264, ISO 2380/1. SoftFinish grip

**General ordering data**

|            |                            |                          |
|------------|----------------------------|--------------------------|
| Type       | SDIS 0.4X2.5X75            | Version                  |
| Order No.  | <a href="#">9008370000</a> | Screwdriver, Screwdriver |
| GTIN (EAN) | 4032248056330              |                          |
| Qty.       | 1 pc(s).                   |                          |

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WEIDMUELLER INTERFACE GmbH & Co.KG

Technical Data

Rev.

Material data

|  |                      |
|--|----------------------|
| Insulation material type               | PA 66                |
| Insulation material colours            | orange/black         |
| Insulation material flammability class | UL94 V - 2           |
| Insulation resistance                  | 10 <sup>3</sup> MOhm |
| Conatct base material                  | Cu-alloy             |
| Contact plating                        | tin-plated           |

System characteristic values

|  |         |                     |
|--|---------|---------------------|
| Pitch <b>P</b>                                       | mm/inch | 3.5/0.138           |
| Number of rows                                       |         | 2                   |
| Dielectric strength (r.m.s withstand voltage)        | kV      | >1.5                |
| Through resistance (typical)                         | mOhm    | 2.2                 |
| Operating temperature range                          | °C      | -55°...+100°        |
| Degree of protection acc. to VDE 0106                |         | finger safe         |
| Degree of protection acc. to DIN EN 60529            |         | IP20                |
| Conductor connection method                          |         | clamping yoke       |
| Screw size   |         | M2                  |
| Screw torque max. acc. to EN 60999                   | Nm      | 0.2                 |
| Screw driver type                                    |         | SDI 0.4x2.5         |
| Solder pin length <b>L</b>                           | mm/inch | 3.2/0.126           |
| PCB hole diameter <b>D</b> (wave soldering)          | mm/inch | 1.3+0.1/0.051+0.004 |
| PCB hole diameter <b>D</b> (reflow soldering)        | mm/inch | n.a.                |
| Resistance to soldering heat acc. to DIN IEC 60512-6 | °C/sec  | 260/10              |
| Resistance to soldering heat acc. to EN 61760-1      | °C/sec  | n.a.                |
| Solderability classification acc. to EN 61760-1      |         | n.a.                |
| Solder connection type                               |         | wave soldering      |
| Solder pin diameter <b>d</b> (max.)                  | mm/inch | 1.22/0.048          |

Application notes

|                                |        |     |
|--------------------------------|--------|-----|
| Coding possibility             | yes/no | no  |
| Joinable without loss of pitch | yes/no | no  |
| Manual assembly of modules     | yes/no | yes |
| Max. number of poles           | n      | 48  |

Conductor

|   |                 |            |
|---|-----------------|------------|
| Clamping range                              | mm <sup>2</sup> | 0.08...1.5 |
| "e" solid H05(07) V-U                       | mm <sup>2</sup> | 0.08...1.5 |
| "f" flexible H05(07) V-K                    | mm <sup>2</sup> | 0.08...1.5 |
| "f" with ferrule acc. to DIN 46228/1        | mm <sup>2</sup> | n.a.       |
| ... with plastic collar acc. to DIN 46228/4 | mm <sup>2</sup> | n.a.       |
| Conductor insulation stripping length       | mm/inch         | 5/0.197    |
| Conductor insulation diameter max.          | mm/inch         | n.a.       |
| Two wire clamping range                     | mm <sup>2</sup> | 0.5        |
| Gauge to EN 60999 (a x b ; Ø)               | mm              | 2.4x1.5    |

IEC 664-1 / VDE0110 (4.97) rated data

|                                      |                 |     |
|--------------------------------------|-----------------|-----|
| Rated cross section acc. to EN 60999 | mm <sup>2</sup> | 1.5 |
| Rated current @ 20°C ambient         | A               | 10  |
| Rated current @ 40°C ambient         | A               | 8,5 |

Overvoltage category / Pollution degree

|                       |       |       |      |
|-----------------------|-------|-------|------|
|                       | III/3 | III/2 | II/2 |
| Rated voltage         | 160   | 160   | 320  |
| Rated impulse voltage | 2.5   | 2.5   | 2.5  |

UL 1059 rated data



File No.: E60693

|  |          |          |          |
|--|----------|----------|----------|
| Rated voltage                                  | <b>B</b> | <b>C</b> | <b>D</b> |
|  | 300      | ---      | 300      |
| Rated current                                  | 10       | ---      | 10       |
| AWG wire range (field wiring / factory wiring) | 28...14  |          |          |

CSA C22.2 rated data



File No.: LR12400

|  |          |          |          |
|--|----------|----------|----------|
| Rated voltage                                  | <b>B</b> | <b>C</b> | <b>D</b> |
|  | 300      | ---      | 300      |
| Rated current                                  | 10       | ---      | 10       |
| AWG wire range (field wiring / factory wiring) | 28...14  |          |          |

Packaging

carton

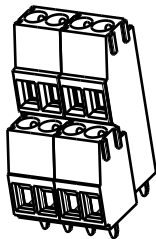
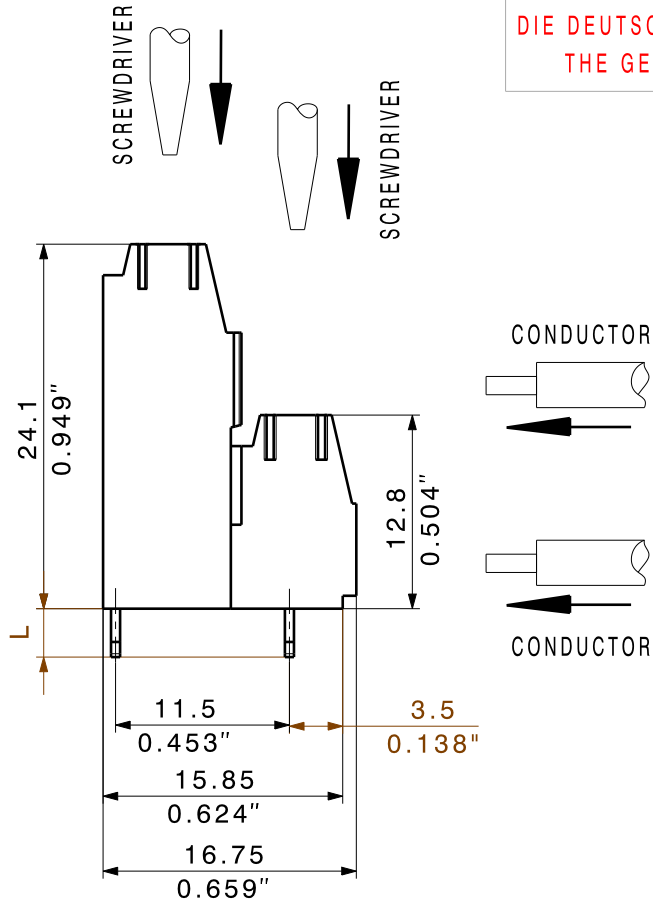
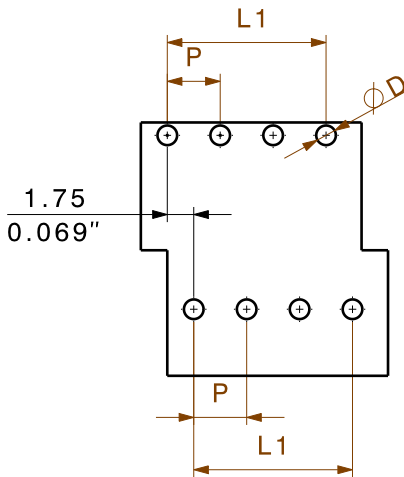
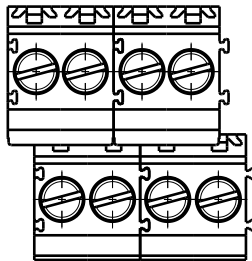
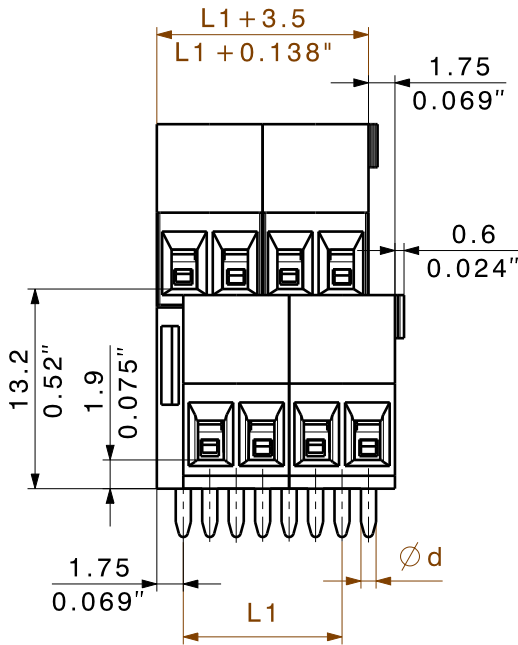
Downloads

www.weidmueller.de

- 1) Sum of ambient temperature and temperature rise
- 2) Recommendation for manual assembly
- 3) Recommendation for automatic assembly
- 4) Recommendation for wave soldering
- 5) Recommendation for reflow soldering
- 6) Referred to rated cross section and 12 pole number

n.a. = not applicable




Subject to technical changes



DIE DEUTSCHE VERSION IST VERBINDLICH  
THE GERMAN VERSION IS BINDING

|          |                |                  |
|----------|----------------|------------------|
| 48       | 80,50          | 3,169            |
| 46       | 77,00          | 3,031            |
| 44       | 73,50          | 2,894            |
| 42       | 70,00          | 2,756            |
| 40       | 66,50          | 2,618            |
| 38       | 63,00          | 2,480            |
| 36       | 59,50          | 2,343            |
| 34       | 56,00          | 2,205            |
| 32       | 52,50          | 2,067            |
| 30       | 49,00          | 1,929            |
| 28       | 45,50          | 1,791            |
| 26       | 42,00          | 1,654            |
| 24       | 38,50          | 1,516            |
| 22       | 35,00          | 1,378            |
| 20       | 31,50          | 1,240            |
| 18       | 28,00          | 1,102            |
| 16       | 24,50          | 0,965            |
| 14       | 21,00          | 0,827            |
| 12       | 17,50          | 0,689            |
| 10       | 14,00          | 0,551            |
| 8        | 10,50          | 0,413            |
| 6        | 7,00           | 0,276            |
| 4        | 3,50           | 0,138            |
| <b>n</b> | <b>L1 [mm]</b> | <b>L1 [Inch]</b> |

SHOWN LM2N3.5/8/90

|   |  |            |  |  |  |
|---|--|------------|--|--|--|
| <div></div> <div>METRIC TOLERANCES<br/>X. = ±0.3<br/>X.X = ±0.1<br/>X.XX = ±0.05</div> | 43264/5<br>17.06.09 HELIS_MA 00  |            | <div><b>Weidmüller</b> </div> <div>DRAWING NO. C 23209 08<br/>SHEET 02 OF 03 SHEETS</div> |  |  |
|   | MODIFICATION   |            |  |  |  |
|   | <div></div> | DATE       | NAME   | <div>LM2N 3.5/././90</div> <div>LEITERPLATTENANSCHLUSSKLEMME</div> <div>PCB TERMINAL</div> |  |
| DRAWN   | 23.09.2008   | HELIS_MA   |  |  |  |
| RESPONSIBLE   |  | KRUG_M     |  |  |  |
| CHECKED   | 18.06.2009   | HECKERT_M  |  |  |  |
| SCALE: 5/1  | CHECKED  | 18.06.2009 | HECKERT_M  | <div>PRODUCT FILE: LM1N 3.5 1111</div>   |  |
| SUPERSEDES: .   | APPROVED   | HECKERT_M  |  |  |  |

For the mounting of PCBs, it should be noted that the rated data stated here 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 664 / 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 EN 61984 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 occuring of electrical, mechanical, thermic and corrosive stress will be satisfied.



## Recommended wave soldering profiles

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Fon: +49 5231 14-0  
Fax: +49 5231 14-292083  
[www.weidmueller.com](http://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.

We reserve the right to make technical changes.