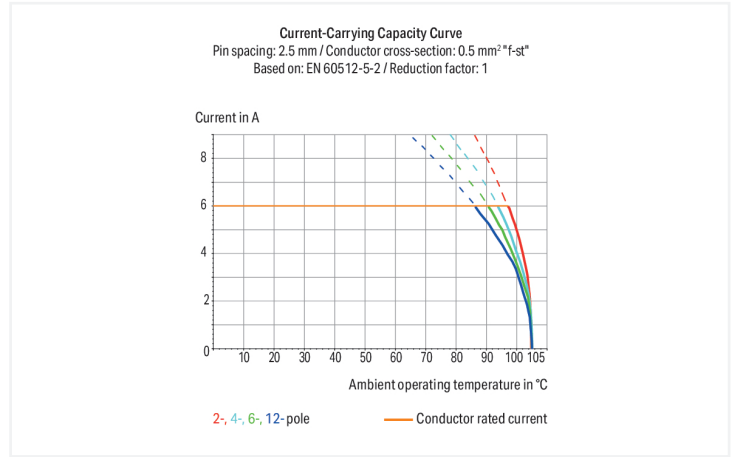


Data Sheet | Item Number: 233-148

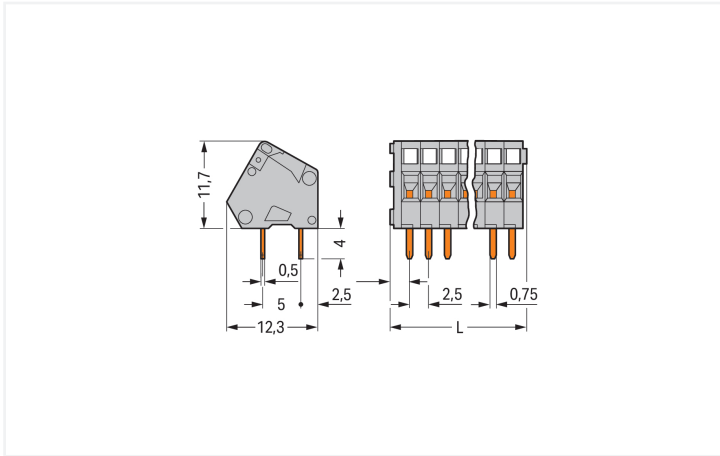
PCB terminal block; 0.5 mm²; Pin spacing 2.5 mm; 48-pole; CAGE CLAMP®; gray

<https://www.wago.com/233-148>



Color: ■ gray

Similar to illustration



Dimensions in mm

$L = (\text{pole no.} \times \text{pin spacing}) + 2.3 \text{ mm}$

PCB terminal block, 233 Series, CAGE CLAMP®

This PCB terminal block (item number 233-148) is designed for quick and easy connections. It is perfect for custom installations with different mounting types. Conductors can only be connected to this PCB terminal block if their strip length is between 5 and 6 mm. This product features one conductor terminal and utilizes CAGE CLAMP®. Our CAGE CLAMP® connection offers a safe and maintenance-free way to connect all types of conductors. You do not need to prepare the conductor in any way, such as crimping ferrules. Dimensions: (122.3 x 15.7 x 12.1) mm (width x height x depth). Depending on the type of conductor, this PCB terminal block is designed for conductor cross sections ranging from 0.08 mm² to 0.5 mm². The contact surface is coated with tin. An operating tool is used to operate this PCB terminal block. The PCB terminal block is designed for THT soldering. Insert the conductor into the board at an angle of 30°.

Notes

| | |
|-----------|--|
| Variants: | Other pole numbers Other colors Mixed-color PCB connector strips Direct marking Other versions (or variants) can be requested from WAGO Sales or configured at https://configurator.wago.com/ . |
|-----------|--|

Electrical data

| Ratings per | IEC/EN 60664-1 | | | Approvals per | UL 1059 | | |
|---------------------------------|----------------|--------|--------|---------------|---------|---|---|
| Overvoltage category | III | III | II | Use group | B | C | D |
| Pollution degree | 3 | 2 | 2 | Rated voltage | 150 V | - | - |
| Nominal voltage | 63 V | 160 V | 320 V | Rated current | 4 A | - | - |
| Rated impulse withstand voltage | 2.5 kV | 2.5 kV | 2.5 kV | | | | |
| Rated current | 6 A | 6 A | 6 A | | | | |

| Approvals per | CSA | | |
|---------------|-------|---|---|
| Use group | B | C | D |
| Rated voltage | 150 V | - | - |
| Rated current | 4 A | - | - |

Connection Data

| | | | |
|----------------------------|----|---|---|
| Clamping units | 48 | Connection 1 | |
| Total number of potentials | 48 | Connection technology | CAGE CLAMP® |
| Number of connection types | 1 | Actuation type | Operating tool |
| Number of levels | 1 | Solid conductor | 0.08 ... 0.5 mm ² / 28 ... 20 AWG |
| | | Fine-stranded conductor | 0.08 ... 0.5 mm ² / 28 ... 20 AWG |
| | | Fine-stranded conductor; with insulated ferrule | 0.25 mm ² |
| | | Fine-stranded conductor; with uninsulated ferrule | 0.25 mm ² |
| | | Note (conductor cross-section) | Terminating 0.75 mm ² /18 AWG conductors is possible; however insulation diameter allows only every other clamping unit to be terminated with this conductor size. |
| | | Strip length | 5 ... 6 mm / 0.2 ... 0.24 inches |
| | | Conductor connection direction to PCB | 30 ° |
| | | Pole number | 48 |

Physical data

| | |
|-------------------------|--------------------------|
| Pin spacing | 2.5 mm / 0.098 inches |
| Width | 122.3 mm / 4.815 inches |
| Height | 15.7 mm / 0.618 inches |
| Height from the surface | 11.7 mm / 0.461 inches |
| Depth | 12.1 mm / 0.476 inches |
| Solder pin length | 4 mm |
| Solder pin dimensions | 0.5 x 0.75 mm |
| ! | 1.1 ^(±0.1) mm |

PCB contact

| | |
|-------------------------------------|--|
| PCB contact | THT |
| Solder pin arrangement | over the entire terminal strip (in-line) |
| Number of solder pins per potential | 2 |

Material data

| | |
|------------------------------------|--|
| Note (material data) | Information on material specifications can be found here |
| Color | gray |
| Material group | I |
| Insulation material (main housing) | Polyamide (PA66) |
| Flammability class per UL94 | V0 |
| Clamping spring material | Chrome-nickel spring steel (CrNi) |
| Contact material | Electrolytic copper (E _{cu}) |
| Contact Plating | Tin |
| Fire load | 0.196 MJ |
| Weight | 16.1 g |

Environmental requirements

| | |
|-------------------------|-----------------|
| Limit temperature range | -60 ... +105 °C |
|-------------------------|-----------------|

Commercial data

| | |
|-----------------------|--------------------------------|
| Product Group | 4 (Printed Circuit Connectors) |
| PU (SPU) | 40 (10) pcs |
| Packaging type | Box |
| Country of origin | CH |
| GTIN | 4045454050818 |
| Customs tariff number | 85369010000 |

Product Classification

| | |
|-------------|----------------------|
| UNSPSC | 39121409 |
| eCl@ss 10.0 | 27-44-04-01 |
| eCl@ss 9.0 | 27-44-04-01 |
| ETIM 9.0 | EC002643 |
| ETIM 10.0 | EC002643 |
| ECCN | NO US CLASSIFICATION |

Environmental Product Compliance

| | |
|------------------------|-------------------------|
| RoHS Compliance Status | Compliant, No Exemption |
|------------------------|-------------------------|

Approvals / Certificates

General approvals



| Approval | Standard | Certificate Name |
|---------------------------------|--------------|------------------|
| CCA DEKRA Certification B.V. | EN 60998 | NTR NL 6946 |
| CCA DEKRA Certification B.V. | EN 60998 | 2153951.01 |
| CCA DEKRA Certification B.V. | EN 60947-7-4 | NTR NL 7786 |

General approvals

| | | |
|---------------------------------------|--------------|-----------|
| CSA DEKRA Certification B.V. | C22.2 | 1465035 |
| KEMA/KEUR DEKRA Certification B.V. | EN 60947-7-4 | 71-111040 |
| UL UL International Germany GmbH | UL 1059 | E45172 |

Declarations of conformity and manufacturer's declarations

| Approval | Standard | Certificate Name |
|--|----------|------------------|
| EU-Declaration of Conformity WAGO GmbH & Co. KG | - | - |
| UK-Declaration of Conformity WAGO GmbH & Co. KG | - | - |

Approvals for marine applications



| Approval | Standard | Certificate Name |
|------------------------------------|----------|-------------------|
| ABS American Bureau of Shipping | - | 24-0095975-PDA |
| DNV DNV GL SE | - | TAE000016Z |
| PRS Polski Rejestr Statków | - | TE/1095/880590/23 |

Downloads

Environmental Product Compliance

| Compliance Search |
|--|
| Environmental Product Compliance 233-148 ↓ |

Documentation

| Additional Information | | | |
|------------------------|------------|-------------------|-------------------|
| Technical Section | 03.04.2019 | pdf 2027.26 KB | ↓ |

CAD/CAE-Data

| CAD data |
|--|
| 2D/3D Models 233-148 ↓ |

| CAE data |
|---|
| EPLAN Data Portal 233-148 ↓ |
| ZUKEN Portal 233-148 ↓ |

PCB Design

| |
|--|
| Symbol and Footprint via SamacSys 233-148 ↓ |
| Symbol and Footprint via Ultra Librarian 233-148 ↓ |

1 Compatible Products

1.1 Optional Accessories

1.1.1 Ferrule

1.1.1.1 Ferrule



Item No.: 216-301
 Ferrule; Sleeve for 0.25 mm² / AWG 24; insulated; electro-tin plated; yellow

Item No.: 216-321
 Ferrule; Sleeve for 0.25 mm² / AWG 24; insulated; electro-tin plated; yellow

Item No.: 216-151
 Ferrule; Sleeve for 0.25 mm² / AWG 24; uninsulated; electro-tin plated

Item No.: 216-131
 Ferrule; Sleeve for 0.25 mm² / AWG 24; uninsulated; electro-tin plated; silver-colored

1.1.2 Marking

1.1.2.1 Marking strip



Item No.: 210-331/250-202
 Marking strips; as a DIN A4 sheet; MARKED; 1-16 (400x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white

Item No.: 210-331/254-202
 Marking strips; as a DIN A4 sheet; MARKED; 1-16 (400x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white

Item No.: 210-331/250-207
 Marking strips; as a DIN A4 sheet; MARKED; 1-48 (100x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white

Item No.: 210-331/254-207
 Marking strips; as a DIN A4 sheet; MARKED; 1-48 (100x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white



Item No.: 210-331/250-204
 Marking strips; as a DIN A4 sheet; MARKED; 17-32 (400x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white

Item No.: 210-331/254-204
 Marking strips; as a DIN A4 sheet; MARKED; 17-32 (400x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white

Item No.: 210-331/250-206
 Marking strips; as a DIN A4 sheet; MARKED; 33-48 (400x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white

Item No.: 210-331/254-206
 Marking strips; as a DIN A4 sheet; MARKED; 33-48 (400x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white

1.1.3 Tool

1.1.3.1 Operating tool



Item No.: 210-719
 Operating tool; Blade: 2.5 x 0.4 mm; with a partially insulated shaft

Item No.: 210-648
 Operating tool; Blade: 2.5 x 0.4 mm; with a partially insulated shaft; angled; short

Item No.: 210-647
 Operating tool; Blade: 2.5 x 0.4 mm; with a partially insulated shaft; multicoloured

Item No.: 233-335
 Operating tool; green

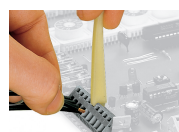
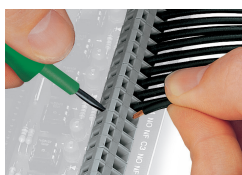


Item No.: 233-331
 Operating tool; insulated; yellow

Item No.: 233-332
 Operating tool; made of insulating material; white

Installation Notes

Conductor termination



Inserting a conductor via 3.5 mm screwdriver.
 Screwdriver actuation parallel to conductor entry

Inserting a conductor via 3.5 mm screwdriver.
 Screwdriver actuation perpendicular to conductor entry

Inserting a conductor via operating tool.

Compared to standard screwdrivers, these operating tools are far more convenient for wiring PCB terminal strips at factory.

Installation



PCB Terminal Strips placed behind each other save space – staggering them by half the pin spacing simplifies subsequent wiring of the first row.

Installation

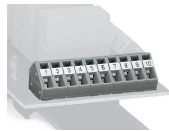


Combining PCB terminal blocks with different pin spacing.

Marking



Optional: Labeling via factory direct marking.



Optional: Labeling with self-adhesive marking strips possible