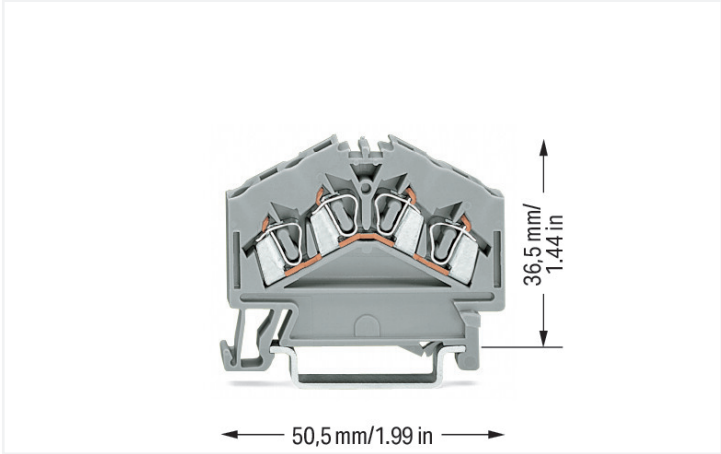
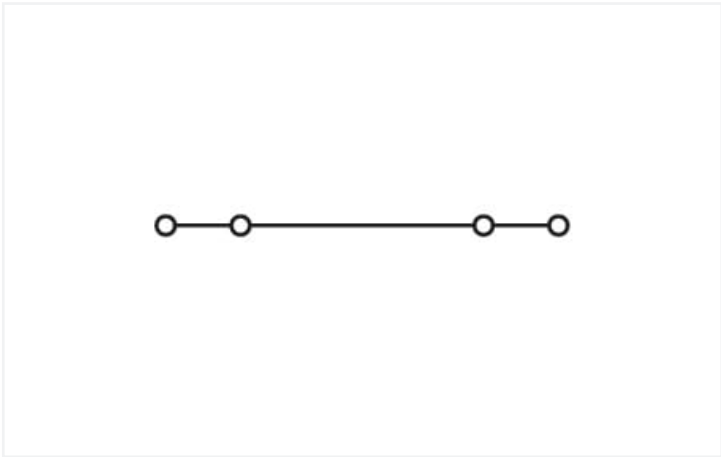
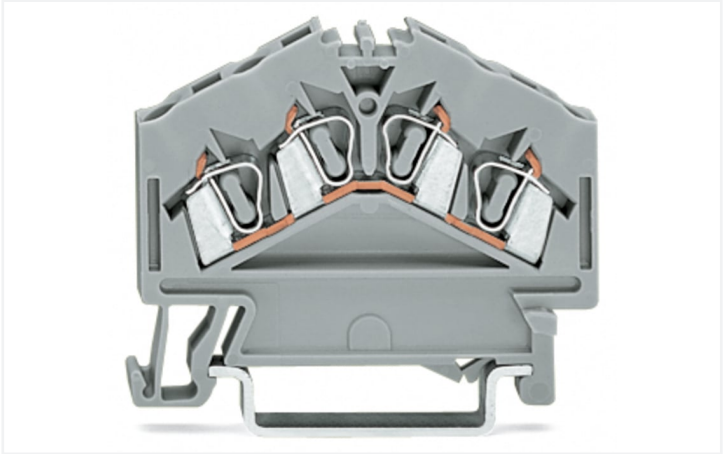




Color: ■ gray



Similar to illustration

Through terminal block, 280 Series, operating tool

This through terminal block (item number 280-646) is designed for quick and easy connections. Whether for industrial or building applications, you can use our through terminal blocks to connect electrical conductors quickly and safely. We offer variants for both classic through-wiring and potential distribution. Our through rail-mount terminal block is rated for 800 V and is designed for use with a rated current of up to 24 A. Strip lengths must be between 8 mm and 9 mm when connecting conductors to this through terminal block. Featuring conductor terminals along with CAGE CLAMP®, this connector delivers reliable performance. Our reliable and maintenance-free CAGE CLAMP® connection makes it easy to connect all types of conductors without having to prepare the conductor. For example, you don't need to crimp ferrules. This through terminal block is suitable for conductor cross sections ranging from 0.08 mm<sup>2</sup> to 2.5 mm<sup>2</sup>. It has one level. The single potential can connect using the four clamping points. The gray housing is made of polyamide (PA66) for insulation. An operating tool is used to operate this through rail-mount terminal block. These through rail-mount terminal blocks are mounted using DIN-35 rails. The angled front-entry wiring makes it possible to connect copper, aluminum conductors.

| Notes              |                                                                       |
|--------------------|-----------------------------------------------------------------------|
| Safety Information | Notice: This terminal block cannot be commoned with adjacent jumpers. |

| Electrical data                                              |       |                  |     |    |
|--------------------------------------------------------------|-------|------------------|-----|----|
| Ratings per                                                  |       | IEC/EN 60947-7-1 |     |    |
| Overvoltage category                                         |       | III              | III | II |
| Pollution degree                                             |       | 3                | 2   | 2  |
| Nominal voltage                                              | 800 V | -                | -   | -  |
| Rated surge voltage                                          | 8 kV  | -                | -   | -  |
| Rated current                                                | 24 A  | -                | -   | -  |
| Power Loss                                                   |       |                  |     |    |
| Power loss, per pole (potential)                             |       | 0.7661 W         |     |    |
| Rated current I <sub>N</sub> for specified power loss        |       | 24 A             |     |    |
| Resistance value for specified, current-dependent power loss |       | 0.00133 Ω        |     |    |



Connection data

|                            |   |
|----------------------------|---|
| Clamping units             | 4 |
| Total number of potentials | 1 |
| Number of levels           | 1 |

Connection 1

|                                 |                    |
|---------------------------------|--------------------|
| Connection technology           | CAGE CLAMP®        |
| Actuation type                  | Operating tool     |
| Connectable conductor materials | Copper<br>Aluminum |

Connectable conductor materials (note) **Terminating Aluminum Conductors**  
WAGO Spring-Clamp Terminal Blocks are suitable for solid aluminum conductors up to 4 mm²/12 AWG if WAGO "Alu-Plus" Contact Paste [249-130](#) is used for termination.

- "Alu-Plus" Contact Paste Advantages:
- Automatically destroys the oxide film during clamping.
  - Prevents fresh oxidation at the clamping point.
  - Prevents electrolytic corrosion between aluminum and copper conductors (in the same terminal block).
  - Provides long-term protection against corrosion.

Using terminal blocks with CAGE CLAMP® Spring Pressure Connection Technology, **aluminum conductors must first be cleaned with a blade** and then immediately inserted into the clamping units filled with "Alu-Plus" contact paste.

It is also possible to apply WAGO "Alu-Plus" **additionally** on the whole surface of the aluminum conductor before termination.

Please note that the nominal currents must be adapted to the reduced conductivity of the aluminum conductors::  
2.5 mm² = 16 A  
4 mm² = 22 A

|                                |                                   |
|--------------------------------|-----------------------------------|
| Solid conductor                | 0.08 ... 2.5 mm² / 28 ... 12 AWG  |
| Fine-stranded conductor        | 0.08 ... 2.5 mm² / 28 ... 12 AWG  |
| Note (conductor cross-section) | 12 AWG: THHN, THWN                |
| Strip length                   | 8 ... 9 mm / 0.31 ... 0.35 inches |
| Wiring direction               | Front-entry wiring, angled        |

Physical data

|                                   |                        |
|-----------------------------------|------------------------|
| Width                             | 5 mm / 0.197 inches    |
| Height                            | 50.5 mm / 1.988 inches |
| Depth from upper-edge of DIN-rail | 36.5 mm / 1.437 inches |

Mechanical data

|               |                |
|---------------|----------------|
| Design        | angled         |
| Mounting type | DIN-35 rail    |
| Marking level | Center marking |



| Material data                      |                  |                                                                          |
|------------------------------------|------------------|--------------------------------------------------------------------------|
| Note (material data)               |                  | <a href="#">Information on material specifications can be found here</a> |
| Color                              | gray             |                                                                          |
| Material group                     | I                |                                                                          |
| Insulation material (main housing) | Polyamide (PA66) |                                                                          |
| Flammability class per UL94        | V0               |                                                                          |
| Fire load                          | 0.136 MJ         |                                                                          |
| Weight                             | 7.4 g            |                                                                          |

| Environmental requirements       |                 |  |
|----------------------------------|-----------------|--|
| Processing temperature           | -35 ... +85 °C  |  |
| Continuous operating temperature | -60 ... +105 °C |  |

| Commercial data       |                                  |  |
|-----------------------|----------------------------------|--|
| Product Group         | 1 (Rail Mounted Terminal Blocks) |  |
| eCl@ss 10.0           | 27-14-11-20                      |  |
| eCl@ss 9.0            | 27-14-11-20                      |  |
| ETIM 9.0              | EC000897                         |  |
| ETIM 8.0              | EC000897                         |  |
| PU (SPU)              | 100 pcs                          |  |
| Packaging type        | Box                              |  |
| Country of origin     | DE                               |  |
| GTIN                  | 4044918456920                    |  |
| Customs tariff number | 85369010000                      |  |

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

Approvals / Certificates

| General approvals                                                                                                                                                      |          |                  | Declarations of conformity and manufacturer's declarations |          |                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|------------------------------------------------------------|----------|------------------|
|   |          |                  |                                                            |          |                  |
| Approval                                                                                                                                                               | Standard | Certificate Name | Approval                                                   | Standard | Certificate Name |
| CCA<br>DEKRA Certification B.V.                                                                                                                                        | EN 60947 | 2157201.01       | EU-Declaration of Confor-<br>mity<br>WAGO GmbH & Co. KG    | -        | -                |
| UL<br>Underwriters Laboratories<br>Inc.                                                                                                                                | UL 1059  | E45172           | UK-Declaration of Confor-<br>mity<br>WAGO GmbH & Co. KG    | -        | -                |

| Approvals for marine applications                                                                                                                                                                                                                                                                                                              |          |                  | Approvals for marine applications |          |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|-----------------------------------|----------|---------------|
|     |          |                  | LR<br>Lloyds Register             | EN 60947 | 91/20112 (E9) |
| Approval                                                                                                                                                                                                                                                                                                                                       | Standard | Certificate Name |                                   |          |               |
| ABS<br>American Bureau of Ship-<br>ping                                                                                                                                                                                                                                                                                                        | EN 60947 | 20-HG1941090-PDA |                                   |          |               |
| BV<br>Bureau Veritas S.A.                                                                                                                                                                                                                                                                                                                      | EN 60947 | 07436/F0 BV      |                                   |          |               |
| DNV GL<br>Det Norske Veritas, Ger-<br>manischer Lloyd                                                                                                                                                                                                                                                                                          | -        | TAE00001V2       |                                   |          |               |



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ZUKEN Portal 280-646

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1 Compatible Products

1.1 Required Accessories

1.1.1 End plate

1.1.1.1 End plate

Item No.: 280-312

End and intermediate plate; 2.5 mm thick; gray

Item No.: 280-313

End and intermediate plate; 2.5 mm thick; orange

Item No.: 280-348

Separator plate; 2.5 mm thick; oversized; gray

Item No.: 280-318

Separator plate; 2.5 mm thick; oversized; orange

1.2 Optional Accessories

1.2.1 DIN-rail

1.2.1.1 Mounting accessories

Item No.: 210-196

Aluminum carrier rail; 35 x 8.2 mm; 1.6 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored

Item No.: 210-198

Copper carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; copper-colored

Item No.: 210-508

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; galvanized; similar to EN 60715; silver-colored

Item No.: 210-197

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; similar to EN 60715; silver-colored

Item No.: 210-506

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; galvanized; similar to EN 60715; silver-colored

Item No.: 210-114

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored

Item No.: 210-118

Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored

Item No.: 210-115

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 18 mm; silver-colored



1.2.1.1 Mounting accessories



**Item No.: 210-112**  
Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 25 mm; silver-colored



**Item No.: 210-504**  
Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; galvanized; according to EN 60715; silver-colored



**Item No.: 210-113**  
Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored



**Item No.: 210-505**  
Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; galvanized; according to EN 60715; silver-colored

1.2.2 Ferrule

1.2.2.1 Ferrule



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



**Item No.: 216-302**  
Ferrule; Sleeve for 0.34 mm² / 22 AWG; insulated; electro-tin plated; light turquoise



**Item No.: 216-201**  
Ferrule; Sleeve for 0.5 mm² / 20 AWG; insulated; electro-tin plated; electrolytic copper; acc. to DIN 46228, Part 4/09.90; white



**Item No.: 216-101**  
Ferrule; Sleeve for 0.5 mm² / AWG 22; un-insulated; electro-tin plated; silver-colored



**Item No.: 216-202**  
Ferrule; Sleeve for 0.75 mm² / 18 AWG; insulated; electro-tin plated; gray



**Item No.: 216-102**  
Ferrule; Sleeve for 0.75 mm² / AWG 20; un-insulated; electro-tin plated; silver-colored



**Item No.: 216-203**  
Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated; red



**Item No.: 216-103**  
Ferrule; Sleeve for 1 mm² / AWG 18; un-insulated; electro-tin plated



**Item No.: 216-204**  
Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; black



**Item No.: 216-104**  
Ferrule; Sleeve for 1.5 mm² / AWG 16; un-insulated; electro-tin plated; silver-colored

1.2.3 Installation

1.2.3.1 Cover



**Item No.: 709-153**  
Cover; Type 1; suitable for cover carrier, type 1; 1 m long; transparent

1.2.3.2 Cover carrier



**Item No.: 709-167**  
Cover carrier; Type 1; incl. fixing/retaining screws and knurled nut; suitable for 279 to 282 and 880 Series rail-mounted terminal blocks; suitable for 264 Series miniature rail-mounted terminal blocks; suitable for 270 Series sensor and actuator terminal blocks; gray



1.2.3.3 Mounting accessories



**Item No.: 209-106**  
Mounting carrier; for isolated mounting on DIN 35 rails; gray



**Item No.: 249-116**  
Screwless end stop; 6 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray

1.2.4 Insulation stop

1.2.4.1 Insulation stop



**Item No.: 280-470**  
Insulation stop; 0.08 - 0.2 mm<sup>2</sup> "s" (0.14 mm<sup>2</sup> "f-st"); 5 pieces/strip; white



**Item No.: 280-471**  
Insulation stop; 0.25 - 0.5 mm<sup>2</sup>; 5 pieces/strip; light gray



**Item No.: 280-472**  
Insulation stop; 0.75 - 1 mm<sup>2</sup>; 5 pieces/strip; black

1.2.5 Jumper

1.2.5.1 Jumper



**Item No.: 280-490**  
Jumper; 10-way; insulated; gray



**Item No.: 280-482**  
Jumper; 2-way; insulated; gray



**Item No.: 280-492**  
Jumper; 2-way; insulated; gray



**Item No.: 280-483**  
Jumper; 3-way; insulated; gray



**Item No.: 280-484**  
Jumper; 4-way; insulated; gray



**Item No.: 280-485**  
Jumper; 5-way; insulated; gray



**Item No.: 709-110**  
Wire commoning chain; 2.5 mm<sup>2</sup>; insulated; black



**Item No.: 709-111**  
Wire commoning chain; 2.5 mm<sup>2</sup>; insulated; black



**Item No.: 709-112**  
Wire commoning chain; 2.5 mm<sup>2</sup>; insulated; black



**Item No.: 210-103**  
Wire commoning chain; insulated; black



**Item No.: 210-123**  
Wire commoning chain; insulated; blue

1.2.6 Marking

1.2.6.1 Double marker carrier



**Item No.: 209-128**  
Adaptor; gray

1.2.6.2 Group marker carrier



**Item No.: 249-105**  
Group marker carrier; gray

1.2.6.3 Marker



**Item No.: 793-5501**  
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; white



**Item No.: 793-501**  
WMB marking card; as card; not stretchable; plain; snap-on type; white



**Item No.: 2009-115**  
WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white

1.2.7 Protective warning marker

1.2.7.1 Cover



**Item No.: 280-415**  
Protective warning marker; for 5 terminal blocks; with high-voltage symbol, black; yellow

1.2.8 Test and measurement

1.2.8.1 Testing accessories



**Item No.: 249-142**  
L-type end module; modular; with rigid contact pin; End module; 1,50 mm²; gray



**Item No.: 249-143**  
L-type spacer module; modular; e.g., bridging commoned terminal blocks; gray



**Item No.: 249-141**  
L-type test plug module; modular; with spring-loaded contact pin; Center module; 1,50 mm²; gray

1.2.9 Tool

1.2.9.1 Operating tool



**Item No.: 210-658**  
Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; angled; short; multicoloured



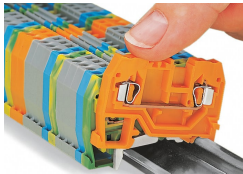
**Item No.: 210-720**  
Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured



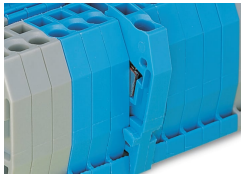
**Item No.: 210-657**  
Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; short; multicoloured

Installation Notes

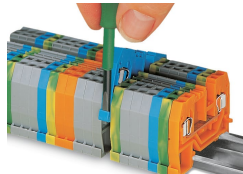
Installation



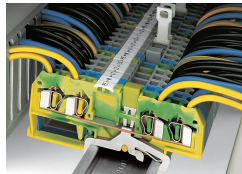
Snapping a terminal block onto the DIN-rail.



Quick assembly keys prevent reverse mounting.

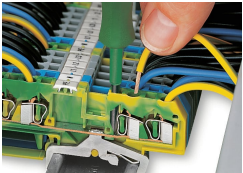


Removing a terminal block from the assembly.

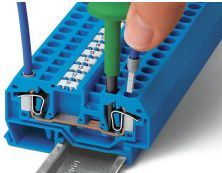


Steel DIN-rails are not suited for PEN (ground and N-conductor) applications per EN 60947-7-2 (VDE 0611, Part 3).

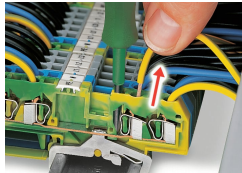
Conductor termination



**CAGE CLAMP® connection**  
Inserting a conductor.



**CAGE CLAMP® connection**  
Inserting a conductor.  
With ferruled conductors, it is necessary to use a terminal block one size larger than the conductor's nominal cross-section.



**CAGE CLAMP® connection**  
Removing a solid conductor.



Inserting insulation stops.

Commoning



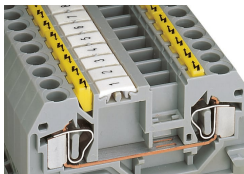
4-conductor through terminal blocks, angled type, formation of groups with 3-way, comb-style jumper bars

Testing



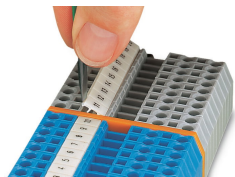
L-type test plug modules fitted with CAGE CLAMP®

Cover



Protective warning markers inserted into the operating slots

Marking



Labeling via WMB Multi Marking System.