

Color: light gray



Similar to illustration

## Through terminal block, 280 Series, CAGE CLAMP®

Our through terminal block (item number 280-998) simplifies electrical installations. Whether for use in industry or building installations, our rail-mount through terminal blocks allow you to quickly and securely connect electrical conductors. They're perfect for either classic through-wiring or distributing potential, depending on the variant. Conductors can only be connected to this through terminal block if their strip length is between 8 mm and 9 mm. This product incorporates conductor terminals and utilizes CAGE CLAMP®. Our trusted universal connection known as CAGE CLAMP® is industry-leading when it comes to connection technology and electrical interconnections. Depending on the conductor type, 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 features one level and three clamping points that you can use to connect a single potential. The light 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 conductors.

## Electrical data

| Ratings per          |     |     | IEC/EN 60947-7-1 |  |  | Ex information             |   |
|----------------------|-----|-----|------------------|--|--|----------------------------|---|
| Overvoltage category | III | III | II               |  |  | Reference hazardous areas  | See application instructions in section "Knowledge and Downloads – Documentation – Additional Information: Technical Section; Technical Explanations" |
| Pollution degree     | 3   | 2   | 2                |  |  | Rated voltage EN (Ex e II) | 550 V   |
| Nominal voltage      | -   | -   | -                |  |  | Note (rated voltage)       | Using staggered jumpers reduces the maximum rated voltage to 275 V.   |
| Rated surge voltage  | -   | -   | -                |  |  | Rated current (Ex e II)    | 23 A  |
| Rated current        | -   | -   | -                |  |  |                            |   |

**Power Loss**

|  |                  |
|--|------------------|
| Power loss, per pole (potential)                             | 0.7036 W         |
| Rated current $I_N$ for specified power loss                 | 23 A             |
| Resistance value for specified, current-dependent power loss | 0.00133 $\Omega$ |

**Connection data**

|                            |   |
|----------------------------|---|
| Clamping units             | 3 |
| Total number of potentials | 1 |
| Number of levels           | 1 |

**Connection 1**

|                                 |  |
|---------------------------------|--|
| Connection technology           | CAGE CLAMP®                                |
| Actuation type                  | Operating tool                             |
| Connectable conductor materials | Copper                                     |
| Solid conductor                 | 0.08 ... 2.5 $\text{mm}^2$ / 28 ... 12 AWG |
| Fine-stranded conductor         | 0.08 ... 2.5 $\text{mm}^2$ / 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                              | light gray   |
| Material group                     | I  |
| Insulation material (main housing) | Polyamide (PA66)   |
| Flammability class per UL94        | V0   |
| Fire load                          | 0.12 MJ  |
| Weight                             | 6.8 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                  | 4044918328043                    |
| 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       | ATEX-Attestation of Conformity<br>WAGO GmbH & Co. KG       | -        | -                |
| CSA<br>DEKRA Certification B.V.     | C22.2    | 1536071          | EU-Declaration of Conformity<br>WAGO GmbH & Co. KG         | -        | -                |
| UL<br>UL International Germany GmbH | UL 1059  | E45172           | UK-Declaration of Conformity<br>WAGO GmbH & Co. KG         | -        | -                |

## Approvals for marine applications



| Approval   | Standard | Certificate Name | Approval   | Standard    | Certificate Name                                 |
|--|----------|------------------|--|-------------|--|
| ABS<br>American Bureau of Shipping               | EN 60947 | 20-HG1941090-PDA | AEx<br>UL International Germany GmbH c/o Physikalisch Technische Bundesanstalt | UL 60079    | E185892 (AEx e II resp. Ex e II)                 |
| BV<br>Bureau Veritas S.A.                        | EN 60947 | 07436/F0 BV      | ATEX<br>Physikalisch Technische Bundesanstalt                                  | IEC 60079-0 | PTB 99 ATEX 3109 U (Ex eb IIIC, Ex 2 Ex eb I Mb) |
| DNV GL<br>Det Norske Veritas, Germanischer Lloyd | -        | TAE00001V2       | CCC<br>CNEX  | GB/T 3836.3 | 2020312313000232 (Ex eb IIIC Gb, Ex eb I Mb)     |
|  |          |                  | IECEx<br>Physikalisch Technische Bundesanstalt                                 | IEC 60079-0 | IECEx PTB 03.0004U (Ex eb IIIC Gb or Ex eb I Mb) |

## Approvals for hazardous areas



## Downloads

### Environmental Product Compliance

#### Compliance Search

Environmental Product  
Compliance 280-998



## Documentation

### Additional Information

Technical Section

pdf  
2246.92 KB



### Bid Text

280-998

19.02.2019

xml  
3.27 KB



280-998

28.02.2017

doc  
24.00 KB



## CAD/CAE-Data

### CAD data

2D/3D Models 280-998



### CAE data

EPLAN Data Portal  
280-998



WSCAD Universe  
280-998



ZUKEN Portal 280-998



## 1 Compatible Products

### 1.1 Required Accessories

#### 1.1.1 End plate



[Item No.: 280-354](#)

End and intermediate plate; 2.5 mm thick;  
light gray



[Item No.: 209-191](#)

Separator for Ex e/Ex i applications; 3 mm  
thick; 120 mm wide; orange



[Item No.: 209-192](#)

Separator for Ex e/Ex i applications; 3 mm  
thick; 125.5 mm wide; orange



[Item No.: 280-355](#)

Separator plate; 2.5 mm thick; oversized;  
light gray

### 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; simi-  
lar 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.: 210-500](#)

Steel carrier rail; 35 x 15 mm; 1.5 mm  
thick; 2 m long; unslotted; galvanized;  
similiar 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 mm<sup>2</sup> / AWG 24; insulated; electro-tin plated; yellow



#### Item No.: 216-302

Ferrule; Sleeve for 0.34 mm<sup>2</sup> / 22 AWG; insulated; electro-tin plated; light turquoise



#### Item No.: 216-201

Ferrule; Sleeve for 0.5 mm<sup>2</sup> / 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 mm<sup>2</sup> / AWG 22; un-insulated; electro-tin plated; silver-colored



#### Item No.: 216-202

Ferrule; Sleeve for 0.75 mm<sup>2</sup> / 18 AWG; insulated; electro-tin plated; gray



#### Item No.: 216-102

Ferrule; Sleeve for 0.75 mm<sup>2</sup> / AWG 20; un-insulated; electro-tin plated; silver-colored



#### Item No.: 216-203

Ferrule; Sleeve for 1 mm<sup>2</sup> / AWG 18; insulated; electro-tin plated; red



#### Item No.: 216-204

Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; insulated; electro-tin plated; black

#### Item No.: 216-104

Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; un-insulated; electro-tin plated; silver-colored



### 1.2.3 Installation

#### 1.2.3.1 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/stripe; white



#### Item No.: 280-471

Insulation stop; 0.25 - 0.5 mm<sup>2</sup>; 5 pieces/stripe; light gray



#### Item No.: 280-472

Insulation stop; 0.75 - 1 mm<sup>2</sup>; 5 pieces/stripe; 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.: 280-402](#)  
Jumper; insulated; gray



[Item No.: 280-409](#)  
Jumper; insulated; gray



[Item No.: 280-422](#)  
Jumper; insulated; yellow-green



[Item No.: 780-452](#)  
Staggered jumper; from 1 to 2; insulated; gray



[Item No.: 780-453](#)  
Staggered jumper; from 1 to 3; insulated; gray



[Item No.: 780-454](#)  
Staggered jumper; from 1 to 4; insulated; gray



[Item No.: 780-455](#)  
Staggered jumper; from 1 to 5; insulated; gray



[Item No.: 780-456](#)  
Staggered jumper; from 1 to 6; insulated; gray



[Item No.: 780-457](#)  
Staggered jumper; from 1 to 7; insulated; gray



[Item No.: 780-458](#)  
Staggered jumper; from 1 to 8; insulated; gray

## 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.: 209-140](#)  
Group marker carrier; gray



[Item No.: 209-141](#)  
Group marker carrier; gray



[Item No.: 209-142](#)  
Group marker carrier; gray



[Item No.: 249-105](#)  
Group marker carrier; gray

## 1.2.6.3 Marker



[Item No.: 793-5501/000-006](#)  
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; blue



[Item No.: 793-5501/000-007](#)  
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; gray



[Item No.: 793-5501/000-023](#)  
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; green



[Item No.: 793-5501/000-017](#)  
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; light green



[Item No.: 793-5501/000-012](#)  
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; orange



[Item No.: 793-5501/000-005](#)  
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; red



[Item No.: 793-5501/000-024](#)  
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; violet



[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.: 793-5501/000-002](#)  
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; yellow



[Item No.: 793-501/000-006](#)  
WMB marking card; as card; not stretchable; plain; snap-on type; blue



[Item No.: 793-501/000-007](#)  
WMB marking card; as card; not stretchable; plain; snap-on type; gray



[Item No.: 793-501/000-023](#)  
WMB marking card; as card; not stretchable; plain; snap-on type; green



[Item No.: 793-501/000-017](#)  
WMB marking card; as card; not stretchable; plain; snap-on type; light green



[Item No.: 793-501/000-012](#)  
WMB marking card; as card; not stretchable; plain; snap-on type; orange



[Item No.: 793-501/000-005](#)  
WMB marking card; as card; not stretchable; plain; snap-on type; red



[Item No.: 793-501/000-024](#)  
WMB marking card; as card; not stretchable; plain; snap-on type; violet

## 1.2.6.3 Marker

Item No.: 793-501

WMB marking card; as card; not stretchable; plain; snap-on type; white

Item No.: 793-501/000-002

WMB marking card; as card; not stretchable; plain; snap-on type; yellow

Item No.: 2009-115/000-006

WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; blue

Item No.: 2009-115/000-007

WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; gray

Item No.: 2009-115/000-023

WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; green

Item No.: 2009-115/000-017

WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; light green

Item No.: 2009-115/000-012

WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; orange

Item No.: 2009-115/000-024

WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; violet

Item No.: 2009-115

WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white

Item No.: 2009-115/000-002

WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; yellow

## 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 Push-in type wire jumper

## 1.2.8.1 Jumper

Item No.: 249-126

Push-in type wire jumper; 0.75 mm<sup>2</sup>; insulated; 110 mm long; black

Item No.: 249-123

Push-in type wire jumper; 0.75 mm<sup>2</sup>; insulated; 180 mm long; black

Item No.: 249-127

Push-in type wire jumper; 0.75 mm<sup>2</sup>; insulated; 250 mm long; black

Item No.: 249-125

Push-in type wire jumper; insulated; 60 mm long; black

## 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

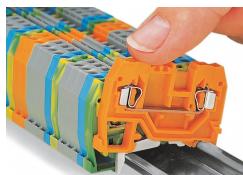
Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured

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).

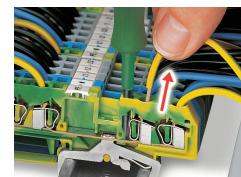
## Conductor termination



**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.

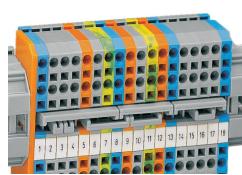


Inserting insulation stops.

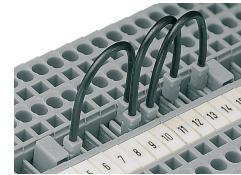
## Commoning



Commoning using an adjacent jumper.  
Push jumper down until fully inserted!



Staggered jumpers are suitable for sophisticated circuit requirements. Push jumpers down until fully inserted!



**Push-In Type Wire Jumpers**  
When installing machines or control systems, it is often necessary to make an additional connection between two terminal blocks that are not next to each other on the rail. In such cases, WAGO's touch-proof, push-in type wire jumpers are the ideal solution.



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

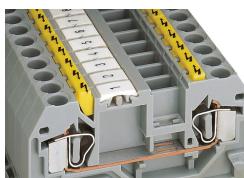
These jumpers are compatible with the following rail-mount terminal blocks:  

- 279 Series (1.5 mm<sup>2</sup>/16 AWG),
- 280/775/780 Series (2.5 mm<sup>2</sup>/14 AWG)
- 281/769/776/777/781 and 880 Series (4 mm<sup>2</sup>/12 AWG)

They are available in three conductor lengths (60, 110 and 250 mm), allowing up to 60 terminal blocks to be commoned depending on their width (see table on the right).

The 280/775/780 and 281/776/777/781 Series Terminal Blocks accept two wire jumpers, allowing the use of commoning chains. Furthermore, the 280/769/775/780/880 and 281/776/777/781 Series allow both wire jumper and adjacent jumper to be simultaneously plugged into a same terminal block.

## Cover



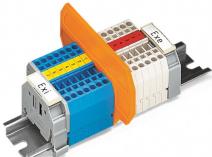
Protective warning markers inserted into the operating slots

## Marking



Labeling via WMB Multi Marking System.

## Ex application



### Separator plate for Ex e/Ex i applications

According to EN 50020, a minimum distance of 50 mm must be kept between live parts of Ex e and Ex i circuits. The use of Ex e/Ex i separators is a space-saving solution when Ex e and Ex i terminal blocks are mounted on a common DIN-rail.

For 279 ... 282 Series:  
209-190 for 2-conductor terminal blocks  
209-191 for 2-, 3-, 4-conductor terminal blocks

### End and intermediate plate

In order to meet creepage and clearance requirements for Ex e applications, it is necessary to insert an end or intermediate plate between a through and a ground conductor terminal block.