

Color: light gray



Similar to illustration

Through terminal block, 280 Series, operating tool

Connecting conductors is quick and easy with this through terminal block (item number 280-993). Whether in industrial or building applications, our rail-mount through terminal blocks are the perfect solution to quickly and securely connect electrical conductors. Depending on the variant, you can use them for either typical through-wiring or potential distribution. Conductors can only be connected to this through terminal block if their strip length is between 8 mm and 9 mm. Featuring conductor terminals along with CAGE CLAMP®, this product is highly versatile. Our reliable and maintenance-free CAGE CLAMP® connection makes it easy to connect all conductor types 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 comes with one level and three clamping points for connecting 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. Conductors made of copper can be connected via front-entry wiring.

### Electrical data

IEC/EN 60947-7-1			UL 1059		
Ratings per			Approvals per		
Overvoltage category	III	III	II	Use group	B C D
Pollution degree	3	2	2	Rated voltage	- 600 V -
Nominal voltage	-	-	-	Rated current	- 20 A -
Rated surge voltage	-	-	-		
Rated current	-	-	-		

Approvals per	CSA 22.2 No 158			Ex information
Use group	B	C	D	Reference hazardous areas See application instructions in section "Knowledge and Downloads – Documentation – Additional Information: Technical Section; Technical Explanations"
Rated voltage	-	600 V	-	Rated voltage EN (Ex e II) 550 V
Rated current	-	24 A	-	Note (rated voltage) Using staggered jumpers reduces the maximum rated voltage to 275 V.
				Rated current (Ex e II) 22 A

**Power Loss**

Power loss, per pole (potential)	0.6437 W
Rated current $I_N$ for specified power loss	22 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

**Physical data**

Width	5 mm / 0.197 inches
Height	64 mm / 2.52 inches
Depth from upper-edge of DIN-rail	28 mm / 1.102 inches

**Mechanical data**

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	VO
Fire load	0.123 MJ
Weight	7.6 g

**Environmental requirements**

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

**Commercial data**

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	4044918391474
Customs tariff number	85369010000

**Environmental Product Compliance**

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

**Approvals / Certificates****General approvals**

Approval	Standard	Certificate Name
CCA DEKRA Certification B.V.	EN 60947	2157201.01
CSA DEKRA Certification B.V.	C22.2	1536071
UL Underwriters Laboratories Inc.	UL 1059	E45172

**Declarations of conformity and manufacturer's declarations**

Approval	Standard	Certificate Name
ATEX-Attestation of Conformity WAGO GmbH & Co. KG	-	-
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	EN 60947	20-HG1941090-PDA
BV Bureau Veritas S.A.	EN 60947	07436/F0 BV
DNV GL Det Norske Veritas, Germanischer Lloyd	-	TAE00001V2

**Approvals for hazardous areas**

Approval	Standard	Certificate Name
AEx UL International Germany GmbH c/o Physikalisch Technische Bundesanstalt	UL 60079	E185892 (AEx e II resp. Ex e II)
ATEX Physikalisch Technische Bundesanstalt	IEC 60079-0	PTB 99 ATEX 3109 U (Ex eb IIIC, IM 2 Ex eb I Mb)
CCC CNEX	GB/T 3836.3	2020312313000232 (Ex eb IIIC Gb, Ex eb I Mb)
IECEx Physikalisch Technische Bundesanstalt	IEC 60079-0	IECEx PTB 03.0004U (Ex eb IIIC Gb or Ex eb I Mb)

## Downloads

### Environmental Product Compliance

#### Compliance Search

Environmental Product  
Compliance 280-993



## Documentation

### Additional Information

#### Technical Section

pdf  
2246.92 KB



### Bid Text

280-993

19.02.2019

xml  
3.26 KB



280-993

28.02.2017

doc  
24.00 KB



## CAD/CAE-Data

### CAD data

2D/3D Models 280-993



### CAE data

EPLAN Data Portal  
280-993



WSCAD Universe  
280-993



ZUKEN Portal 280-993



## 1 Compatible Products

### 1.1 Required Accessories

#### 1.1.1 End plate



[Item No.: 280-358](#)

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.: 280-359](#)

Separator plate; 2 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.: 210-506](#)

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

[Item No.: 210-111](#)

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; uninsulated; 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.: 216-103**  
Ferrule; Sleeve for 1 mm<sup>2</sup> / AWG 18; un-insulated; electro-tin plated



**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 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.: 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

[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](#)

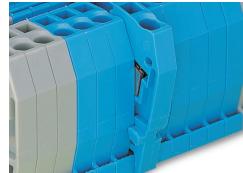
Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; short; multicoloured

## Installation Notes

## Installation



Snapping a terminal block onto the DIN-rail.



Quick assembly keys prevent reverse mounting.



Removing a terminal block from the assembly.

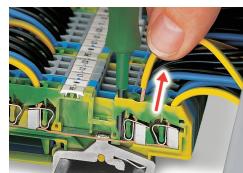


Steel DIN-rails are not suited for PEN (ground and N-conductor) applications per EN 60947-7-2 (VDE 0611, Part 3).

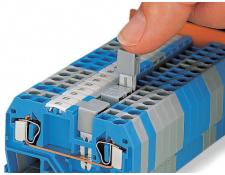
## Conductor termination

**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.

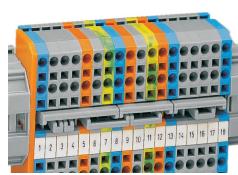
Inserting insulation stops.

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

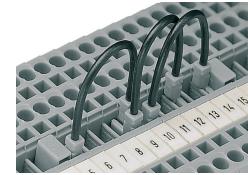
## Commoning



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!



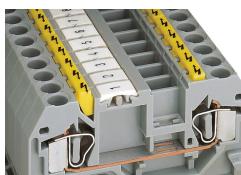
### Push-In Type Wire Jumpers

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.



Commoning using comb-style jumper bars:  
Push comb-style jumper bars down until fully inserted.

## Cover



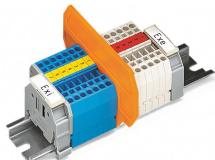
Protective warning markers inserted into the operating slots

## 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.