

## Data Sheet | Item Number: 281-622/281-417

2-conductor fuse terminal block; with pivoting fuse holder; for 5 x 30 mm miniature metric fuse; with blown fuse indication by neon lamp; 230 V; for DIN-rail 35 x 15 and 35 x 7.5; 4 mm<sup>2</sup>; CAGE CLAMP®; gray

<https://www.wago.com/281-622/281-417>



Color: ■ gray

Similar to illustration

### Fuse terminal block, 281 Series, CAGE CLAMP®

This fuse terminal block (item number 281-622/281-417) is designed for easy and secure connections. Strip lengths must be between 9 and 10 mm when connecting conductors to this fuse terminal block. This product features conductor terminals and utilizes CAGE CLAMP®. Our celebrated universal connection known as CAGE CLAMP® is industry-leading when it comes to connection technology and electrical interconnections. Depending on the conductor type, this fuse terminal block is suitable for conductor cross sections ranging from 0.08 mm<sup>2</sup> to 4 mm<sup>2</sup>.

#### Electrical data

Ratings per	IEC/EN 60947-7-3		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Nominal voltage	800 V	-	-
Rated impulse withstand voltage	8 kV	-	-
Rated current	10 A	-	-

#### Ratings per IEC/EN – Notes

Ratings (note)	Electrical ratings are given by the fuse and blown fuse indication.
Rated current (note)	Leakage current in case of a blown fuse: Neon lamp < 0.4 mA

#### Power Loss

Power loss (max.) $P_{I(max)}$ (note)	When selecting glass cartridge fuses, make sure that the maximum power loss listed below is not exceeded. The power loss is determined according to IEC or EN 60947-7-3/VDE 0611-6 at 23°C. The temperature rise of the terminal block must be checked according to their application and mounting. Higher ambient temperatures represent an additional impact on miniature fuses. Therefore, in such applications, the rated current must be reduced if necessary. More details are available from the manufacturers.
---------------------------------------	--

Maximum power loss  $P_{loss}$  of fuse insert for overload and short-circuit protection (individual arrangement) 2.5 W

Maximum power loss  $P_{loss}$  of fuse insert for overload and short-circuit protection (block arrangement) 1.6 W

#### Power Loss

Power loss $P_{I}$ max. short-circuit protection (individual arrangement)	4 W
Power loss $P_{loss}$ (max.) of fuse cartridge for short-circuit protection (block arrangement)	4 W

### General information

Fuse receptacle	pivoting
Fuse type	Cylindrical fuse; 5 x 30 mm
Wiring direction	Front-entry wiring

### Connection Data

Clamping units	2
Total number of potentials	2
Number of levels	1

### Connection 1

Connection technology	CAGE CLAMP®
Actuation type	Operating tool
Connectable conductor materials	Copper Aluminum

Connectable conductor materials (note) **Terminating Aluminum Conductors**  
WAGO Spring-Clamp Terminal Blocks are suitable for solid aluminum conductors up to 4 mm<sup>2</sup>/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 mm<sup>2</sup> = 16 A  
4 mm<sup>2</sup> = 22 A

Solid conductor	0.08 ... 4 mm <sup>2</sup> / 28 ... 12 AWG
Fine-stranded conductor	0.08 ... 4 mm <sup>2</sup> / 28 ... 12 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 inches
Wiring direction	Front-entry wiring

### Physical data

Width	8 mm / 0.315 inches
Height	60 mm / 2.362 inches
Depth from upper-edge of DIN-rail	60 mm / 2.362 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	0.324 MJ
Weight	17.7 g

### Environmental requirements

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

### Commercial data

Product Group	1 (Rail Mounted Terminal Blocks)
PU (SPU)	50 pcs
Packaging type	Box
Country of origin	DE
GTIN	4045454197094
Customs tariff number	85369095000

### Product Classification

UNSPSC	39121410
eCl@ss 10.0	27-14-11-16
eCl@ss 9.0	27-14-11-16
ETIM 9.0	EC000899
ETIM 10.0	EC000899
ECCN	NO US CLASSIFICATION

### Environmental Product Compliance

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

### Approvals / Certificates

#### General approvals



Approval	Standard	Certificate Name
CSA CSA Group	C22.2	1505034
KEMA/KEUR DEKRA Certification B.V.	EN 60947	NTR NL-7135
KEMA/KEUR DEKRA Certification B.V.	EN 60947	2160584.31
UR 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	-	-

Approvals for marine applications



Approval	Standard	Certificate Name
ABS American Bureau of Ship- ping	-	24-0152298-PDA
DNV GL Det Norske Veritas, Ger- manischer Lloyd	-	TAE00001V2
PRS Polski Rejestr Statków	-	TE/1094/880590/23

Downloads

Environmental Product Compliance

Compliance Search	
Environmental Product Compliance 281-622/281-417	<a href="#">↓</a>

Documentation

Bid Text			
281-622/281-417	19.02.2019	xml 3.58 KB	<a href="#">↓</a>
281-622/281-417	09.03.2017	doc 26.00 KB	<a href="#">↓</a>

CAD/CAE-Data

CAD data	
2D/3D Models 281-622/281-417	<a href="#">↓</a>

CAE data	
EPLAN Data Portal 281-622/281-417	<a href="#">↓</a>
WSCAD Universe 281-622/281-417	<a href="#">↓</a>
ZUKEN Portal 281-622/281-417	<a href="#">↓</a>

## 1 Compatible Products

### 1.1 Required Accessories

#### 1.1.1 End plate

##### 1.1.1.1 End plate



**Item No.: 281-311**

End and intermediate plate; 2.5 mm thick; gray



**Item No.: 281-309**

End and intermediate plate; 2.5 mm thick; 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



**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.: 216-241**

Ferrule; Sleeve for 0.5 mm<sup>2</sup> / 20 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; white



**Item No.: 216-242**

Ferrule; Sleeve for 0.75 mm<sup>2</sup> / 18 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; gray



**Item No.: 216-243**

Ferrule; Sleeve for 1 mm<sup>2</sup> / AWG 18; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; red



**Item No.: 216-244**

Ferrule; Sleeve for 1.5 mm<sup>2</sup> / AWG 16; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; black



**Item No.: 216-246**

Ferrule; Sleeve for 2.5 mm<sup>2</sup> / AWG 14; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; blue



**Item No.: 216-106**

Ferrule; Sleeve for 2.5 mm<sup>2</sup> / AWG 14; 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 Jumper

#### 1.2.4.1 Jumper



**Item No.: 281-402**

Jumper; 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

### 1.2.5 Locking system

#### 1.2.5.1 Locking system



**Item No.: 210-254**

Interlocking link; mechanically locks multiple links; 1 m long; transparent

1.2.6 Marking

1.2.6.1 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 Push-in type wire jumper

1.2.7.1 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

## 1.2.8 Test and measurement

### 1.2.8.1 Testing accessories



**Item No.: 249-147**

B-type test plug module; modular; 2,50 mm<sup>2</sup>; gray



**Item No.: 280-404**

Test plug adapter; 5 mm wide; for test plug (2.3 mm Ø); suitable for 1.5 mm<sup>2</sup> - 4 mm<sup>2</sup> tbs; gray



**Item No.: 281-407**

Test plug; 6 mm wide; Nominal current 24 A; for 0.08 mm<sup>2</sup> - 2.5 mm<sup>2</sup>; 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

### Conductor termination



**CAGE CLAMP® connection**

Inserting a conductor.  
With ferruled conductors, it is necessary to use a terminal block one size smaller than the conductor's nominal cross-section.

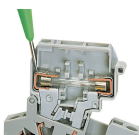
### Commoning



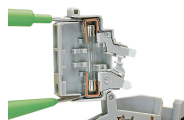
**Commoning**

Distributing current to several fuse-protected circuits via insulated push-in type jumpers.

## Testing



Voltage test, either at input or output with fuse holder in closed position (live)



Through test with fuse holder in open position (no voltage)

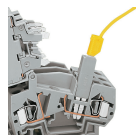


Voltage test at input in the test slot of the current bar



Testing voltage at the output via separate test slot.

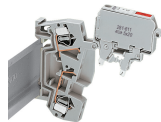
Testing



Measuring current between jumper slot and separate test slot.

Testing voltage (input side) via test plug adapter (280-404, shown) or test plug (281-407).

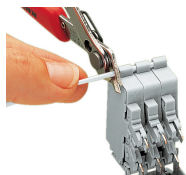
Security



Touch-proof protection in all positions of the fuse holder

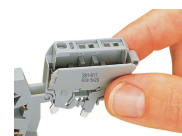
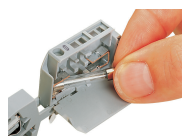
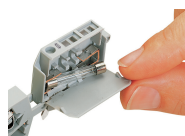
Fuse holder will remain safely locked open in vertical assemblies.

Locking system



Ganging several fuse holders with an interlocking link (example shows 8 mm wide terminal blocks).

Application



**Fuse replacement:** Before replacing a fuse, pivot the fuse holder into the locked open position.

**Fuse replacement:** One end of the fuse is automatically ejected from the holder when opening the cover.

**Fuse replacement:** Easily removing a fuse by hand.

**Fuse replacement:** Insert a new fuse and snap the cover closed.



Fused disconnect or disconnect terminal blocks with a width of 8 mm can be assembled adjacently. At the end of an assembly, or if there is **no** adjacent fused disconnect or disconnect terminal block, an end or intermediate plate must be used.

## Marking



All fuse holders are printed with correct fuse size.

Each fuse holder features two marker slots for custom WMB Multi markers (example shows 8 mm wide terminal blocks).