

Data sheet | Item number: 281-651

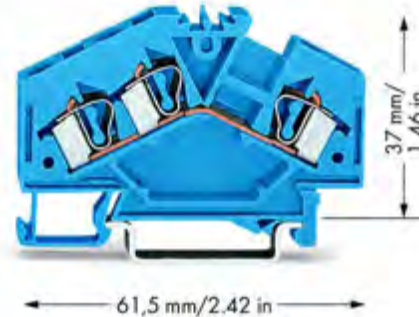
3-conductor through terminal block; 4 mm²; suitable for Ex i applications;
center marking; for DIN-rail 35 x 15 and 35 x 7.5; CAGE CLAMP®; 4,00 mm²;
blue



RoHS
Compliant ✓

BOMcheck.net

Color: ■



Item description

Subject to changes. Please also observe the further product documentation!

**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 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 be 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

Data**Electrical data****Ratings per IEC/EN 60664-1**

Ratings per	IEC/EN 60947-7-1
Nominal voltage (III/3)	800 V
Rated surge voltage (III/3)	8 kV
Rated current	32 A
Legend (ratings)	(III / 3) △ Overvoltage category III / Pollution degree 3

Connection data

Connection technology	CAGE CLAMP®
Actuation type	Operating tool
Connectable conductor materials	Copper Aluminum
Solid conductor	0.08 ... 4 mm ² / 28 ... 12 AWG
Fine-stranded conductor	0.08 ... 4 mm ² / 28 ... 12 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch

Subject to changes. Please also observe the further product documentation!



Total number of connection points	3
Total number of potentials	1
Number of levels	1
Wiring type	Front-entry wiring

Geometrical Data

Width	6 mm / 0.236 inch
Height from upper-edge of DIN-rail	37 mm / 1.457 inch
Depth	61.5 mm / 2.421 inch

Mechanical data

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

Material Data

Color	blue
Insulation material	Polyamide 66 (PA66)
Fire load	0.185 MJ
Weight	10.2 g

Commercial data

Product Group	1 (Rail Mounted Terminal Blocks)
Packaging type	BOX
Country of origin	PL
GTIN	4044918323901
Customs tariff number	85369010000

Approvals / Certificates

Country specific Approvals

Logo	Approval	Additional Approval Text	Certificate name
	CCA DEKRA Certification B.V.	EN 60947, IEC 60947	NTR NL-7454/A1
	CSA	C22.2 No. 158	1505034

Subject to changes. Please also observe the further product documentation!



DEKRA Certification B.V.



KEMA/KEUR

DEKRA Certification B.V.

EN 60947

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107288

Ship Approvals

Logo	Approval	Additional Approval Text	Certificate name
	ABS American Bureau of Shipping	-	20- HG1941090- PDA
	BV Bureau Veritas S.A.	EN 60947	07436/E0 BV
	DNV GL Det Norske Veritas, Germanischer Lloyd	-	TAE00001V2
	LR Lloyds Register	EN 60947	91/20112 (E9)

UL-Approvals

Logo	Approval	Additional Approval Text	Certificate name
	UL Underwriters Laboratories Inc.	UL 1059	20170731- E45172

Compatible products

Subject to changes. Please also observe the further product documentation!

Carrier rail

**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

**Item no.: 210-113**

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715

**Item no.: 210-114**

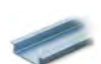
Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715

**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

**Item no.: 210-118**

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

**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.: 210-197**

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

**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.: 210-504**

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; galvanized; according to EN 60715

**Item no.: 210-505**

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; galvanized; according to EN 60715

**Item no.: 210-506**

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

**Item no.: 210-508**

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

End plate

**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.: 281-318

Subject to changes. Please also observe the further product documentation!



Separator plate; 2 mm thick; oversized; gray



Item no.: 281-348

Separator plate; 2 mm thick; oversized; gray

Push-In type wire jumper



Item no.: 249-123

Push-in type wire jumper; 0.75 mm²; insulated; 180 mm long; black



Item no.: 249-125

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



Item no.: 249-126

Push-in type wire jumper; 0.75 mm²; insulated; 110 mm long; black



Item no.: 249-127

Push-in type wire jumper; 0.75 mm²; insulated; 250 mm long; black

Marking accessories



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



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.: 2009-115/000-012

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



Item no.: 2009-115/000-017

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



Item no.: 2009-115/000-023

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



Item no.: 2009-115/000-024

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



Item no.: 209-140

Group marker carrier; gray

Subject to changes. Please also observe the further product documentation!



Item no.: 209-141
Group marker carrier; gray



Item no.: 209-142
Group marker carrier; gray



Item no.: 209-185
Adaptor; gray



Item no.: 249-105
Group marker carrier; gray



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.: 793-501/000-005
WMB marking card; as card; not stretchable; plain; snap-on type; red



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.: 793-501/000-012
WMB marking card; as card; not stretchable; plain; snap-on type; orange



Item no.: 793-501/000-017
WMB marking card; as card; not stretchable; plain; snap-on type; light green



Item no.: 793-501/000-023
WMB marking card; as card; not stretchable; plain; snap-on type; green



Item no.: 793-501/000-024
WMB marking card; as card; not stretchable; 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

Subject to changes. Please also observe the further product documentation!

**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.: 793-5501/000-006**

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.: 793-5501/000-012**

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.: 793-5501/000-017**

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.: 793-5501/000-023**

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.: 793-5501/000-024**

WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; violet

assembling

**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

**Item no.: 709-153**

Cover; Type 1; suitable for cover carrier, type 1; 1 m long; transparent

ferrule

**Item no.: 216-106**

Ferrule; Sleeve for 2.5 mm² / AWG 14; uninsulated; electro-tin plated

**Item no.: 216-201**

Ferrule; Sleeve for 0.5 mm² / 20 AWG; insulated; electro-tin plated; white

**Item no.: 216-202**

Ferrule; Sleeve for 0.75 mm² / 18 AWG; insulated; electro-tin plated; gray

**Item no.: 216-203**

Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated; red

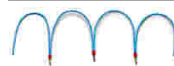
**Item no.: 216-204**

Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; black

Subject to changes. Please also observe the further product documentation!

**Item no.: 216-205**Ferrule; Sleeve for 2.08 mm² / AWG 14; insulated; electro-tin plated; yellow**Item no.: 216-206**Ferrule; Sleeve for 2.5 mm² / AWG 14; insulated; electro-tin plated; blue**Item no.: 216-241**Ferrule; Sleeve for 0.5 mm² / 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 mm² / 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 mm² / 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 mm² / 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 mm² / AWG 14; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; blue**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; green**Insulation stop****Item no.: 281-470**Insulation stop; 0.08 - 0.2 mm² "s" (0.14 mm² "f-st"); 5 pieces/strip; white**Item no.: 281-471**Insulation stop; 0.25 - 0.5 mm²; 5 pieces/strip; light gray**Item no.: 281-472**Insulation stop; 0.75 - 1.5 mm²; 5 pieces/strip; dark gray**Jumper****Item no.: 210-103**

Wire commoning chain; insulated; black

**Item no.: 210-123**

Wire commoning chain; insulated; blue

**Item no.: 281-402**

Jumper; insulated; gray

**Item no.: 281-409**

Jumper; insulated; gray

Item no.: 281-422

Subject to changes. Please also observe the further product documentation!



Jumper; insulated; yellow-green



Item no.: 281-482

Jumper; insulated; gray



Item no.: 281-483

Jumper; 3-way; insulated; gray



Item no.: 281-485

Jumper; 5-way; insulated; gray



Item no.: 281-490

Jumper; 10-way; insulated; gray



Item no.: 281-492

Jumper; 2-way; insulated; gray



Item no.: 709-110

Wire commoning chain; 2.5 mm²; insulated; black



Item no.: 709-111

Wire commoning chain; 2.5 mm²; insulated; black



Item no.: 709-112

Wire commoning chain; 2.5 mm²; insulated; black



Item no.: 781-452

Staggered jumper; from 1 to 2; insulated; gray



Item no.: 781-453

Staggered jumper; from 1 to 3; insulated; gray



Item no.: 781-454

Staggered jumper; from 1 to 4; insulated; gray



Item no.: 781-455

Staggered jumper; from 1 to 5; insulated; gray



Item no.: 781-456

Staggered jumper; from 1 to 6; insulated; gray

Protective Warning Marker



Item no.: 281-415

Protective warning marker; with high-voltage symbol, black; for 5 terminal blocks; yellow

tools



Item no.: 210-657

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



Item no.: 210-658

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

Item no.: 210-720

Subject to changes. Please also observe the further product documentation!



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

check



Item no.: 209-170

Test plug adapter; 8.3 mm wide; for 4 mm Ø test plugs; suitable for 1.5 mm² - 10 mm² tbs; gray



Item no.: 249-144

L-type test plug module; modular; with spring-loaded contact pin; Center module; 2,50 mm²; gray



Item no.: 249-145

L-type end module; modular; with rigid contact pin; End module; 2,50 mm²; gray



Item no.: 249-146

L-type spacer module; modular; e.g., bridging commoned terminal blocks; gray



Item no.: 249-147

B-type test plug module; modular; 2,50 mm²; gray



Item no.: 249-148

B-type spacer module; modular; e.g., for bridging commoned terminal blocks; gray



Item no.: 280-404

Test plug adapter; 5 mm wide; for test plug 210-137 (2.3 mm Ø); suitable for 1.5 mm² - 4 mm² tbs; gray



Item no.: 281-407

Test plug; 6 mm wide; Nominal current 24 A; for 0.08 mm² - 2.5 mm²; 2,50 mm²; gray



Item no.: 281-418

Test plug module; modular; suitable for all WAGO 281, 776, 777 and 781 series rail-mounted terminal blocks with jumper slots in the current bar; gray



Item no.: 281-419

Spacer module; modular; bridging commoned terminal blocks; gray

Downloads

Documentation

Bid Text

281-651

GAEB X81 - Datei

281-651

doc - Datei

Additional Information

Technical explanations

Subject to changes. Please also observe the further product documentation!

CAD/CAE-Data

CAD data

2D/3D Models 281-651

CAE data

EPLAN Data Portal 281-651

WSCAD Universe 281-651

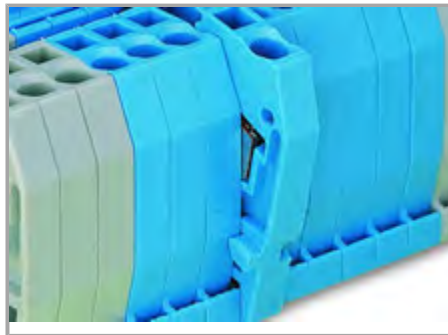
ZUKEN Portal 281-651

Installation Notes

Installation



Snapping a terminal block onto the carrier rail.



Quick assembly keys prevent reverse mounting.



Removing a terminal block from the assembly.

Subject to changes. Please also observe the further product documentation!



Steel carrier 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.



CAGE CLAMP® connection
Removing a conductor.

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

Subject to changes. Please also observe the further product documentation!



Inserting insulation stops.

Commoning



Commoning using an adjacent jumper (280-402) and alternate jumper (280-409). Push jumper down until fully inserted.



Staggered jumpers for sophisticated circuit requirements – push jumpers down until fully inserted.

Subject to changes. Please also observe the further product documentation!



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.

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

279 Series (1.5 mm²/16 AWG),
280/775/780 Series (2.5 mm²/14 AWG)
281/769/776/777/781 and 880 Series
(4 mm²/12 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.

Compared with the 279 Series, the 280/775/780 and 281/776/777/781 Series can also accommodate 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.

Testing

4-conductor through terminal blocks, angled type –

formation of groups with 3-way, comb-style jumper bars

Subject to changes. Please also observe the further product documentation!



Testing with a test plug



L-type test plug modules fitted with
CAGE CLAMP®



B-type test plug modules fitted with
CAGE CLAMP®

(picture shows a test plug fitted with
CAGE CLAMP®).



Testing with a test plug



The test plug modules are directly plugged
into the jumper contact slot of the current
bar.

(picture shows 209-170 Test Plug Adapter).

Cover

Subject to changes. Please also observe the further product documentation!



Protective warning markers inserted into the operating slots.

Subject to changes. Please also observe the further product documentation!