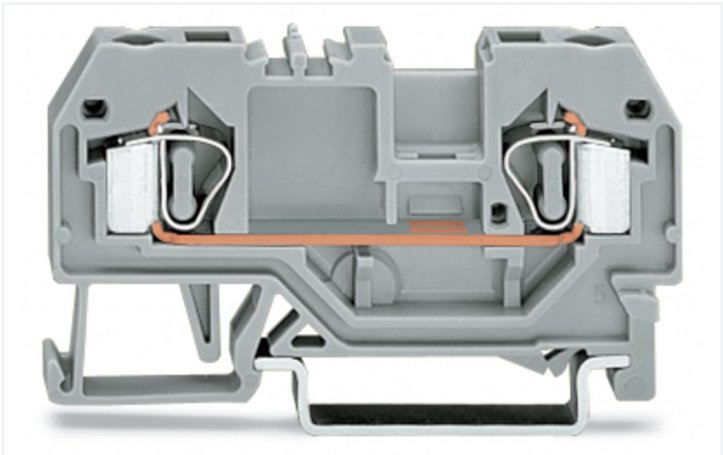
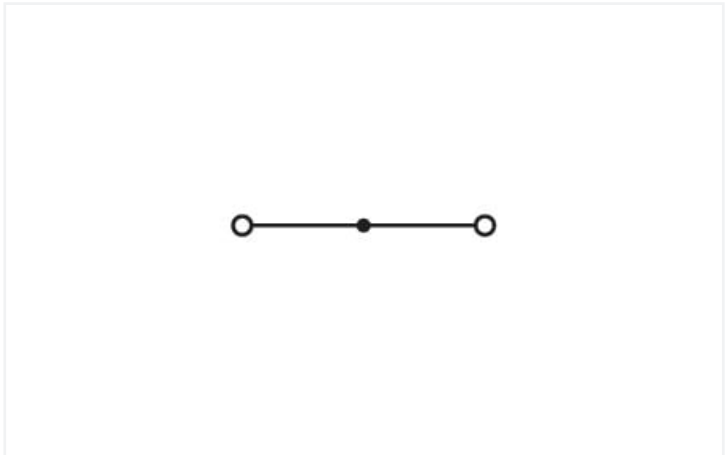




Color: ■ orange

Similar to illustration



Similar to illustration

Through terminal block, 281 Series, operating tool

Our through terminal block (item number 281-902) ensures effortless electrical installations. 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. Rated current and voltage are key factors to consider when choosing a through rail-mount terminal block, as they indicate how the product can be used. This product has a rated voltage of 800 V and a rated current of 32 A. Conductors can only be connected to this through terminal block if their strip length is between 9 mm and 10 mm. This product incorporates conductor terminals and utilizes CAGE CLAMP®. 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 mm² to 4 mm². It comes with one level and two clamping points for connecting a single potential. The orange housing is made of polyamide (PA66) for insulation. This through rail-mount terminal block is operated with an operating tool. These through rail-mount terminal blocks are mounted using DIN-35 rails.. You can connect copper, aluminum conductors via front-entry wiring.

Electrical data				
Ratings per		IEC/EN 60947-7-1		
Overvoltage category	III	III	II	Power Loss Power loss, per pole (potential)1.024 W Rated current I_N for specified power loss32 A Resistance value for specified, current-dependent power loss0.001 Ω
Pollution degree	3	2	2	
Nominal voltage	800 V	-	-	
Rated surge voltage	8 kV	-	-	
Rated current	32 A	-	-	
Connection data				
Clamping units	2	Connection 1 Connection technologyCAGE CLAMP® Actuation typeOperating tool Connectable conductor materialsCopper Aluminum		
Total number of potentials	1			
Number of levels	1			



Connection 1

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 ... 4 mm² / 28 ... 12 AWG
Fine-stranded conductor	0.08 ... 4 mm² / 28 ... 12 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 inches
Wiring direction	Front-entry wiring

Physical data

Width	6 mm / 0.236 inches
Height	59 mm / 2.323 inches
Depth from upper-edge of DIN-rail	29 mm / 1.142 inches

Mechanical data

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

Material data

Note (material data)	Information on material specifications can be found here
Color	orange
Material group	I
Insulation material (main housing)	Polyamide (PA66)
Flammability class per UL94	V0
Fire load	0.145 MJ
Weight	7.9 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)		50 pcs
Packaging type		Box
Country of origin		DE
GTIN		4044918485074
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.	IEC 60947	NTR NL-7454/A1
CSA CSA Group	C22.2	1505034
KEMA/KEUR DEKRA Certification B.V.	EN 60947	71-107288
UR UL International Germany GmbH	UL 1059	E45172

Declarations of conformity and manufacturer's declarations

Approval	Standard	Certificate Name
EU-Declaration of Confor- mity WAGO GmbH & Co. KG	-	-
UK-Declaration of Confor- mity WAGO GmbH & Co. KG	-	-

Approvals for marine applications



Approval	Standard	Certificate Name
ABS American Bureau of Ship- ping	-	20-HG1941090-PDA
BV Bureau Veritas S.A.	EN 60947	07436/F0 BV
DNV GL Det Norske Veritas, Ger- manischer Lloyd	-	TAE00001V2



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Environmental Product Compliance

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Environmental Product Compliance 281-902

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Documentation

Additional Information

Technical Section

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xml

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WSCAD Universe 281-902

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ZUKEN Portal 281-902

Download icon

1 Compatible Products

1.1 Required Accessories

1.1.1 End plate

1.1.1.1 End plate

Item No.: 281-328

End and intermediate plate; 2.5 mm thick; gray

Item No.: 281-329

End and intermediate plate; 2.5 mm thick; orange

Item No.: 281-330

Separator plate; 2 mm thick; oversized; gray

Item No.: 281-331

Separator plate; 2 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; 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; unslopped; according to EN 60715; silver-colored



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

1.2.2 End plate

1.2.2.1 End plate



Item No.: 284-334
Step-down cover plate; 1 mm thick; for 2-, 3- and 4-conductor terminal blocks; gray



Item No.: 284-344
Step-down cover plate; 1 mm thick; for 2-, 3- and 4-conductor terminal blocks; orange

1.2.3 Ferrule

1.2.3.1 Ferrule



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.: 216-106
Ferrule; Sleeve for 2.5 mm² / AWG 14; un-insulated; electro-tin plated; silver-colored

1.2.4 Installation

1.2.4.1 Cover



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

1.2.4.2 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



1.2.4.3 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

1.2.5 Insulation stop

1.2.5.1 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

1.2.6 Jumper

1.2.6.1 Jumper



Item No.: 281-490
Jumper; 10-way; insulated; gray



Item No.: 281-482
Jumper; 2-way; insulated; gray



Item No.: 281-492
Jumper; 2-way; insulated; gray



Item No.: 281-483
Jumper; 3-way; insulated; gray



Item No.: 281-485
Jumper; 5-way; insulated; gray



Item No.: 281-402
Jumper; insulated; gray



Item No.: 281-409
Jumper; insulated; gray



Item No.: 281-422
Jumper; insulated; yellow-green



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



Item No.: 283-414
Step-down jumper; from 283 to 281 series; insulated; gray



Item No.: 284-414
Step-down jumper; from 284/282 to 281/280/279 series; 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.: 210-103
Wire commoning chain; insulated; black



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

1.2.7 Marking

1.2.7.1 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



1.2.7.2 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

1.2.8 Protective warning marker

1.2.8.1 Cover



Item No.: 281-415
Protective warning marker; for 5 terminal blocks; with high-voltage symbol, black; yellow



1.2.9 Push-in type wire jumper

1.2.9.1 Jumper



Item No.: 249-126
Push-in type wire jumper; 0.75 mm²; insulated; 110 mm long; black



Item No.: 249-123
Push-in type wire jumper; 0.75 mm²; insulated; 180 mm long; black



Item No.: 249-127
Push-in type wire jumper; 0.75 mm²; insulated; 250 mm long; black



Item No.: 249-125
Push-in type wire jumper; insulated; 60 mm long; black

1.2.10 Test and measurement

1.2.10.1 Testing accessories



Item No.: 249-148
B-type spacer module; modular; e.g., for bridging commoned terminal blocks; gray



Item No.: 249-147
B-type test plug module; modular; 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.: 249-144
L-type test plug module; modular; with spring-loaded contact pin; Center module; 2,50 mm²; gray



Item No.: 281-419
Spacer module; modular; bridging commoned terminal blocks; gray



Item No.: 280-404
Test plug adapter; 5 mm wide; for test plug (2.3 mm Ø); suitable for 1.5 mm² - 4 mm² tbs; gray



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.: 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.: 281-407
Test plug; 6 mm wide; Nominal current 24 A; for 0.08 mm² - 2.5 mm²; 2,50 mm²; gray

1.2.11 Tool

1.2.11.1 Operating tool



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



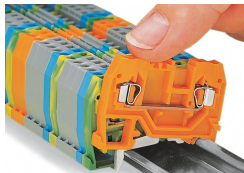
Item No.: 210-720
Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured



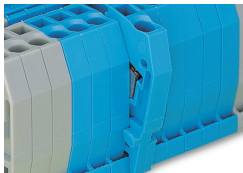
Item No.: 210-657
Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; short; multicoloured red

Installation Notes

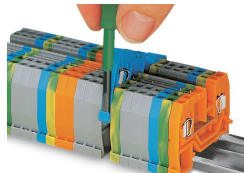
Installation



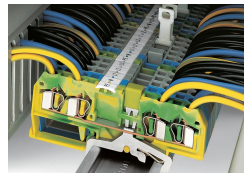
Snapping a terminal block onto the DIN-rail.



Quick assembly keys prevent reverse mounting.

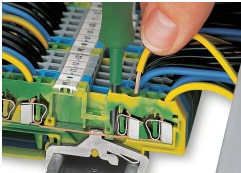


Removing a terminal block from the assembly.

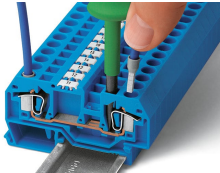


Steel DIN-rails are not suited for PEN (ground and N-conductor) applications per EN 60947-7-2 (VDE 0611, Part 3).

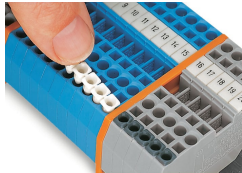
Conductor termination



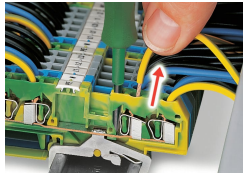
CAGE CLAMP® connection
Inserting a conductor.



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.

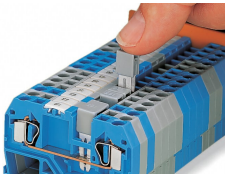


Inserting insulation stops.

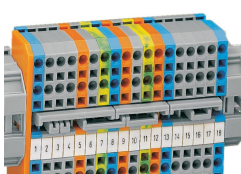


CAGE CLAMP® connection
Removing a solid conductor.

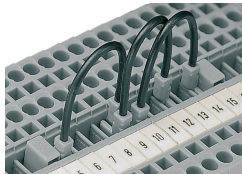
Commoning



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!



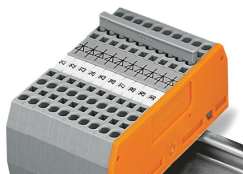
Push-In Type Wire Jumpers
When installing machines or control systems, it is often necessary to make an additional connection between two terminal blocks that are not next to each other on the rail. In such cases, WAGO's touch-proof, push-in type wire jumpers are the ideal solution.

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

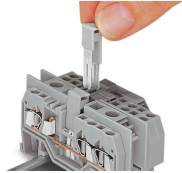
- 279 Series (1.5 mm²/16 AWG),
- 280/775/780 Series (2.5 mm²/14 AWG)
- 281/769/776/777/781 and 880 Series (4 mm²/12 AWG)

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 (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.

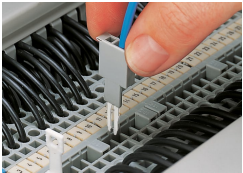


Commoning using comb-style jumper bars:
Push comb-style jumper bars down until fully inserted.



Commoning terminal blocks of different sizes via step-down jumpers.

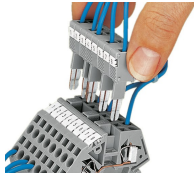
Testing



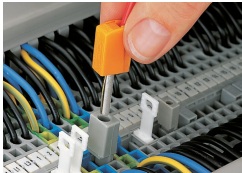
Testing with a test plug.
Picture shows a test plug fitted with CAGE CLAMP®.



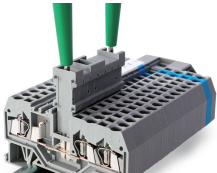
L-type test plug modules fitted with CA-GE CLAMP®



B-type test plug modules fitted with CA-GE CLAMP®

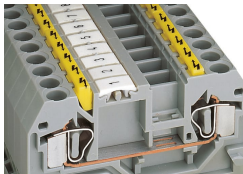


Testing with a test plug.
Picture shows a test plug adapter (209-170).



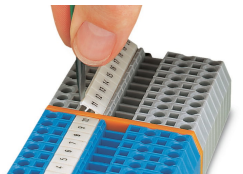
Test plugs modules are directly plugged into the jumper contact slot of the current bar.

Cover

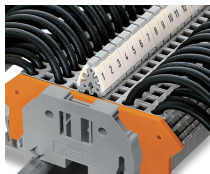


Protective warning markers inserted into the operating slots

Marking



Labeling via WMB Multi Marking System.



Terminal block marking with double marker carriers (209-128) Terminal blocks with side marking