

Color: ■ gray

Female connector, 2022 Series, operating tool

Error-free electrical installations are guaranteed with this female connector (item number 2022-181). Pluggable rail-mount terminal blocks are primarily found in switchgear units and control systems, most notably in railroad technology. These innovative systems combine the benefits of rail-mount terminal blocks and connectors for a flexible and reliable wiring system. You also have the option of pre-assembling installations, which not only makes production but also installation, operation, and maintenance more efficient and cost-effective. This pluggable rail-mount terminal block has a rated voltage of 690 V and can handle currents up to 24 A. Conductors can only be connected to this female connector if their strip length is between 10 mm and 12 mm. This product features conductor terminals and utilizes Push-in CAGE CLAMP®. Our Push-in CAGE CLAMP® is a universal, maintenance-free connection solution for all conductor types, boasting a key feature: It allows direct insertion of both solid and fine-stranded conductors with ferrules without needing tools. No preparation is required; for example, crimping the conductor's ferrule is not necessary. The item's dimensions are 5.2 x 40.5 x 22.4 mm (width x height x depth). This female connector is suitable for conductor cross sections ranging from 0.25 mm² to 4 mm². The single potential can connect one pole using one clamping point. The gray housing is made of polyamide (PA66) for insulation. An operating tool is used to operate this female connector/socket. The front-entry wiring makes it possible to connect copper conductors.

Notes	
Safety Information	According to EN 61984, pluggable connectors without current interrupting capacity must not be mated or unmated when live or under load.

Electrical data				
Ratings per		IEC/EN 61984		
Overvoltage category		III	III	II
Pollution degree		3	2	2
Nominal voltage		690 V	-	-
Rated surge voltage		6 kV	-	-
Rated current		24 A	-	-
Current at conductor cross-section (max.) mm²		32 A	-	-
Approvals per		UL 1059		
Use group		B	C	D
Rated voltage		600 V	600 V	-
Rated current		20 A	20 A	-

Approvals per		CSA 22.2 No 158		
Use group		B	C	D
Rated voltage		-	600 V	-
Rated current		-	20 A	-



Connection data			
Clamping units	1	Connection 1	
Total number of potentials	1	Connection technology	Push-in CAGE CLAMP®
		Actuation type	Operating tool
		Connectable conductor materials	Copper
		Nominal cross-section	2.5 mm²
		Solid conductor	0.25 ... 4 mm² / 22 ... 12 AWG
		Solid conductor; push-in termination	0.75 ... 4 mm² / 18 ... 12 AWG
		Fine-stranded conductor	0.25 ... 4 mm² / 22 ... 12 AWG
		Fine-stranded conductor; with insulated ferrule	0.25 ... 2.5 mm² / 22 ... 14 AWG
		Fine-stranded conductor; with ferrule; push-in termination	1 ... 2.5 mm² / 18 ... 14 AWG
		Note (conductor cross-section)	Depending on the conductor characteristic, a conductor with a smaller cross-section can also be inserted via push-in termination.
		Strip length	10 ... 12 mm / 0.39 ... 0.47 inches
		Pole number	1
		Wiring direction	Front-entry wiring

Physical data		
Width	5.2 mm / 0.205 inches	
Height	40.5 mm / 1.594 inches	
Depth	22.4 mm / 0.882 inches	

Mechanical data		
Variable coding	Yes	
Marking level	Side marking	
Anti-rotation protection	Yes	

Plug-in connection		
Contact type (pluggable connector)	Female connector/socket	
Connector (connection type)	for conductor	
Mismating protection	No	
Plugging without loss of pin spacing	Yes	

Material data		
Note (material data)	Information on material specifications can be found here	
Color	gray	
Material group	I	
Insulation material (main housing)	Polyamide (PA66)	
Flammability class per UL94	V0	
Fire load	0.065 MJ	
Weight	3.6 g	



Environmental requirements

Processing temperature	-35 ... +85 °C	Environmental Testing (Environmental Conditions)	
Continuous operating temperature	-60 ... +105 °C	Test specification Railway applications – Rolling stock – Electronic equipment	DIN EN 50155 (VDE 0115-200):2022-06
		Test procedure Railway applications – Rolling stock equipment – Shock and vibration tests	DIN EN 61373 (VDE 0115-0106):2011-04
		Spectrum/Installation location	Service life test, Category 1, Class A/B
		Function test with noise-like vibration	Test passed according to Section 8 of the standard
		Frequency	f ₁ = 5 Hz to f ₂ = 150 Hz f ₁ = 5 Hz to f ₂ = 150 Hz
		Acceleration	0.101g (highest test level used for all axes) 0.572g (highest test level used for all axes) 5g (highest test level used for all axes)
		Test duration per axis	10 min. 5 h
		Test directions	X, Y and Z axes X, Y and Z axes X, Y and Z axes
		Monitoring for contact faults/interruptions	Passed
		Voltage drop measurement before and after each axis	Passed
		Simulated service life test through increased levels of noise-like vibration	Test passed according to Section 9 of the standard
		Extended test scope: Monitoring for contact faults/interruptions	Passed Passed
		Extended test scope: Voltage drop measurement before and after each axis	Passed Passed
		Shock test	Test passed according to Section 10 of the standard
		Shock form	Half sine
		Shock duration	30 ms
		Number of shocks per axis	3 pos. und 3 neg.
		Vibration and shock stress for rolling stock equipment	Passed





Commercial data




Product Group	18 (X-COM-System)
PU (SPU)	250 pcs
Packaging type	Bag
Country of origin	CN
GTIN	4066966659672
Customs tariff number	85366990990




Product classification	
UNSPSC	39121409
eCl@ss 10.0	27-14-11-06
eCl@ss 9.0	27-14-11-06
ETIM 9.0	EC001284
ETIM 8.0	EC001284
ECCN	NO US CLASSIFICATION

Environmental Product Compliance	
RoHS Compliance Status	Compliant,No Exemption

Approvals / Certificates		
General approvals		Declarations of conformity and manufacturer's declarations
  		
Approval	Standard	Certificate Name
CSA DEKRA Certification B.V.	C22.2 No. 158	2437422
KEMA/KEUR DEKRA Certification B.V.	EN 61984	71-101560
UL Underwriters Laboratories Inc.	UL 1059	E45172
Approval	Standard	Certificate Name
EU-Declaration of Confor- mity WAGO GmbH & Co. KG	-	-
Railway WAGO GmbH & Co. KG	-	Z00004392.000
UK-Declaration of Confor- mity WAGO GmbH & Co. KG	-	-

Approvals for marine applications		
  		
Approval	Standard	Certificate Name
ABS American Bureau of Ship- ping	EN 60947	20-HG1941090-PDA
BV Bureau Veritas S.A.	EN 60947	38586/B0 BV
DNV GL Det Norske Veritas, Ger- manischer Lloyd	-	TAE00001V2

Downloads	
Environmental Product Compliance	
Compliance Search	
Environmental Product Compliance 2022-181	



Documentation

Bid Text			
2022-181	19.02.2019	xml 4.26 KB	
2022-181	14.05.2019	docx 16.11 KB	

CAD/CAE-Data

CAD data		CAE data	
2D/3D Models		EPLAN Data Portal	
2022-181		WSCAD Universe	
		2022-181	
		ZUKEN Portal	
		2022-181	

1 Compatible Products

1.1 Optional Accessories

1.1.1 Ferrule

1.1.1.1 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.: 216-262 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.: 216-263 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.: 216-264 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.: 216-284 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.: 216-266 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.: 216-286 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	



1.1.2 Insulation stop

1.1.2.1 Insulation stop



[Item No.: 2002-171](#)
Insulation stop; 0.25 - 0.5 mm²; 5 pieces/strip; light gray



[Item No.: 2002-172](#)
Insulation stop; 0.75 - 1 mm²; 5 pieces/strip; dark gray

1.1.3 Locking system

1.1.3.1 Locking system



[Item No.: 2022-141](#)
Locking lever; gray



[Item No.: 2022-151](#)
Locking lever; gray



[Item No.: 2022-142](#)
Locking lever; orange



[Item No.: 2022-152](#)
Locking lever; orange

1.1.4 Marking

1.1.4.1 Marker



[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.: 2009-115](#)
WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white

1.1.4.2 Marking strip



[Item No.: 210-833](#)
Marking strips; 25 m on roll; 6 mm wide; plain; Self-adhesive; white



[Item No.: 2009-110](#)
Marking strips; for Smart Printer; on reel; not stretchable; plain; snap-on type; white



[Item No.: 210-831](#)
Marking strips; on reel; 2.3 mm wide; plain; Self-adhesive; white



[Item No.: 210-832](#)
Marking strips; on reel; 3 mm wide; plain; Self-adhesive; white



[Item No.: 210-834](#)
Marking strips; on reel; 5 mm wide; plain; Self-adhesive; white

1.1.5 Protective warning marker

1.1.5.1 Cover



[Item No.: 2002-115](#)
Protective warning marker; for 5 terminal blocks; with high-voltage symbol, black; yellow

1.1.6 Screwless end stop

1.1.6.1 Mounting accessories



Item No.: 249-117
Screwless end stop; 10 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray



Item No.: 249-116
Screwless end stop; 6 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray

1.1.7 Strain relief

1.1.7.1 Strain relief plate



Item No.: 734-430
Strain relief plate; for female and male connectors; 1 part; gray



Item No.: 734-328
Strain relief plate; for female and male connectors; 12.5 mm wide; 1 part; gray



Item No.: 734-329
Strain relief plate; for female and male connectors; 25 mm wide; 1 part; gray



Item No.: 734-326
Strain relief plate; for female and male connectors; 35 mm wide; 1 part; gray



Item No.: 734-327
Strain relief plate; for female and male connectors; 6 mm wide; 1 part; gray



Item No.: 734-431
Strain relief plate; for female and male connectors; 75 mm wide; 1 part; gray

1.1.8 Tool

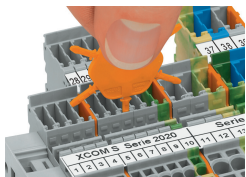
1.1.8.1 Operating tool



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

Installation Notes

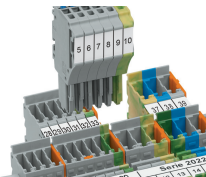
Coding



Insert coding pin into the corresponding slot and twist it off.

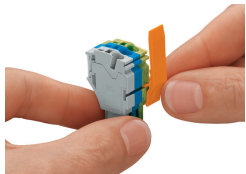


Coding a female plug: remove coding finger using a suitable tool.

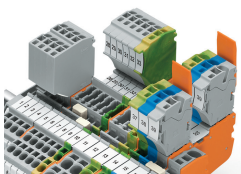


Insert coded female plug into X-COM®S-SYSTEM terminal block assembly.

Locking system



Slide the locking lever into position.



Female plugs can be individually locked.

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

Current addresses can be found at: www.wago.com