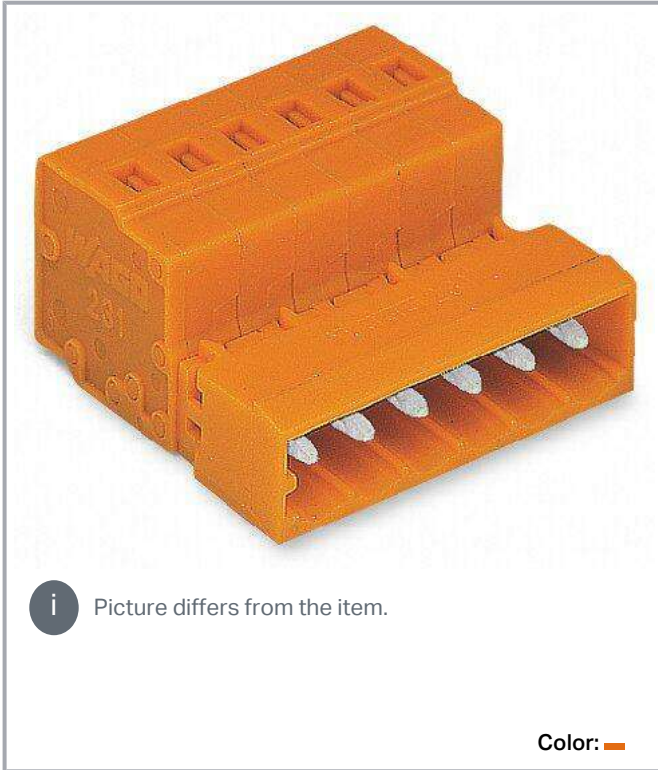


Data sheet | Item number: 231-648

Male connector; 18-pole; Pin spacing 5.08 mm ; orange

www.wago.com/231-648



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

WAGO Corporation
Germantown, WI 53022
Phone: 1-800-DIN-RAIL (346-7245) | Fax: (262) 255-6222
Email: info.us@wago.com | Web: www.wago.us

Do you have any questions about our products?
We are always happy to take your call at +49 (571) 887-44222.



Dimensions in mm

$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$

$L_1 = L - 1.7 \text{ mm}$

$L_2 = L - 1.2 \text{ mm}$

Item description

- Universal connection for all conductor types
- Easy cable pre-assembly and on-unit wiring via vertical and horizontal CAGE CLAMP[®] actuation
- For wire-to-wire and board-to-wire connections
- Versions available with snap-in mounting feet or flanges for panel or through-panel mounting

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

WAGO Corporation
Germantown, WI 53022
Phone: 1-800-DIN-RAIL (346-7245) | Fax: (262) 255-6222
Email: info.us@wago.com | Web: www.wago.us

Do you have any questions about our products?
We are always happy to take your call at +49 (571) 887-44222.



- With coding fingers

Data Notes

Safety information 1

The *MCS – MULTI CONNECTION SYSTEM* includes connectors without breaking capacity in accordance with DIN EN 61984. When used as intended, these connectors must not be connected /disconnected when live or under load. The circuit design should ensure header pins, which can be touched, are not live when unmated.

Variants:

Other pole numbers
Gold-plated or partially gold-plated contact surfaces
Other versions (or variants) can be requested from WAGO Sales or configured at <https://configurator.wago.com/>

Electrical data

IEC Approvals

Ratings per	IEC/EN 60664-1
Rated voltage (III / 3)	320 V
Rated surge voltage (III/3)	4 kV
Rated voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
Nominal voltage (II/2)	630 V
Rated surge voltage (II/2)	4 kV
Rated current	12 A
Legend (ratings)	(III / 2) $\hat{=}$ Overvoltage category III / Pollution degree 2

UL Approvals

Approvals per	UL 1059
Rated voltage UL (Use Group B)	300 V
Rated current UL (Use Group B)	15 A
Rated voltage UL (Use Group D)	300 V
Rated current UL (Use Group D)	10 A

Ratings per UL

Rated voltage UL 1977	600 V
Rated current UL 1977	15 A

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

WAGO Corporation
Germantown, WI 53022
Phone: 1-800-DIN-RAIL (346-7245) | Fax: (262) 255-6222
Email: info.us@wago.com | Web: www.wago.us

Do you have any questions about our products?
We are always happy to take your call at +49 (571) 887-44222.



CSA Approvals

Approvals per	CSA
Rated voltage CSA (Use Group B)	300 V
Rated current CSA (Use Group B)	15 A
Rated voltage CSA (Use Group D)	300 V
Rated current CSA (Use Group D)	10 A

Connection data

Total number of connection points	18
Total number of potentials	18
Number of connection types	1
Number of levels	1

Connection 1

Connection technology	CAGE CLAMP®
Actuation type	Operating tool
Solid conductor	0.08 ... 2.5 mm ² / 28 ... 12 AWG
Fine-stranded conductor	0.08 ... 2.5 mm ² / 28 ... 12 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 1.5 mm ²
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 2.5 mm ²
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch
Number of poles	18
Conductor entry direction to mating direction	0°

Physical data

Pin spacing	5.08 mm / 0.2 inch
Width	94.64 mm / 3.726 inch
Height	14.3 mm / 0.563 inch
Depth	27.5 mm / 1.083 inch

Plug-in connection

Contact type (pluggable connector)	Male connector/plug
Connector (connection type)	for conductor
Mismating protection	No
Locking of plug-in connection	Without

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

Material data

Color	orange
Material group	I
Insulation material	Polyamide (PA66)
Flammability class per UL94	V0
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated
Fire load	0.45 MJ
Weight	27.6 g

Environmental requirements



Limit temperature range	-60 ... +100 °C
-------------------------	-----------------

Commercial data

Product Group	3 (Multi Conn. System)
PU (SPU)	10 Stück
Packaging type	box
Country of origin	DE
GTIN	4044918261104
Customs tariff number	8536694040



Approvals / Certificates

Country specific Approvals



Logo	Approval	Additional Approval Text	Certificate name
	CB DEKRA Certification B.V.	IEC 61984	NL-39756
	CSA DEKRA Certification B.V.	C22.2	1466354
	KEMA/KEUR DEKRA Certification B.V.	EN 61984	2190761.01

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






Ship Approvals

Logo	Approval	Additional Approval Text	Certificate name
	ABS American Bureau of Shipping	-	19- HG1869876- PDA
	DNV GL Det Norske Veritas, Germanischer Lloyd	-	TAE000016Z
	LR Lloyds Register	IEC 61984	96/20035 (E5)

UL-Approvals

Logo	Approval	Additional Approval Text	Certificate name
	UL UL International Germany GmbH	UL 1977	E45171
	UR Underwriters Laboratories Inc.	UL 1059	E45172













Counterpart

	Item no.2231-318/026-000 Female plug; 18-pole; push-button; 12 AWG max; pin spacing 5.08 mm;1-conductor per pole; orange	www.wago.com/2231-318/026-000
	Item no.2231-318/008-000 Female plug; 18-pole; push-button; snap-in mounting feet;12 AWG max; pin spacing 5.08 mm;1-conductor per pole; orange	www.wago.com/2231-318/008-000
	Item no.2231-318/031-000 Female plug; 18-pole; push-button; mounting flange;12 AWG max; pin spacing 5.08 mm;1-conductor per pole; orange	www.wago.com/2231-318/031-000
	Item no.2231-318/037-000 Female plug; 18-pole; push-button; locking lever;12 AWG max; pin spacing 5.08 mm;1-conductor per pole; orange	www.wago.com/2231-318/037-000
	Item no.2231-318/102-000 Female plug; 18-pole; push-button; with integrated end plate;12 AWG max; pin spacing 5.08 mm;1-conductor per pole; orange	www.wago.com/2231-318/102-000

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

WAGO Corporation
Germantown, WI 53022
Phone: 1-800-DIN-RAIL (346-7245) | Fax: (262) 255-6222
Email: info.us@wago.com | Web: www.wago.us

Do you have any questions about our products?
We are always happy to take your call at +49 (571) 887-44222.

	Item no.231-318/027-000 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 18-pole; clamping collar; 2,50 mm²; orange	www.wago.com/231-318/027-000
	Item no.231-318/008-000 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 18-pole; Snap-in mounting feet; 2,50 mm²; orange	www.wago.com/231-318/008-000
	Item no.231-318/026-000 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 18-pole; 2,50 mm²; orange	www.wago.com/231-318/026-000
	Item no.231-318/031-000 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 18-pole; clamping collar; 2,50 mm²; orange	www.wago.com/231-318/031-000
	Item no.231-318/037-000 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 18-pole; Lateral locking levers; 2,50 mm²; orange	www.wago.com/231-318/037-000
	Item no.232-178 THT female header; straight; Pin spacing 5.08 mm; 18-pole; 0.6 x 1.0 mm solder pin; orange	www.wago.com/232-178
	Item no.231-318/102-000 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 18-pole; with integrated end plate; 2,50 mm²; orange	www.wago.com/231-318/102-000
	Item no.232-178/039-000 THT female header; straight; Pin spacing 5.08 mm; 18-pole; Locking lever; 0.6 x 1.0 mm solder pin; orange	www.wago.com/232-178/039-000
	Item no.232-178/031-000 THT female header; straight; Pin spacing 5.08 mm; 18-pole; clamping collar; 0.6 x 1.0 mm solder pin; orange	www.wago.com/232-178/031-000
	Item no.232-178/047-000 THT female header; straight; Pin spacing 5.08 mm; 18-pole; Spacer flange; 0.6 x 1.0 mm solder pin; orange	www.wago.com/232-178/047-000
	Item no.232-278 THT female header; angled; Pin spacing 5.08 mm; 18-pole; 0.6 x 1.0 mm solder pin; orange	www.wago.com/232-278
	Item no.232-278/031-000 THT female header; angled; Pin spacing 5.08 mm; 18-pole; clamping collar; 0.6 x 1.0 mm solder pin; orange	www.wago.com/232-278/031-000

Item no.232-278/047-000

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



THT female header; angled; Pin spacing 5.08 mm; 18-pole; Spacer flange; 0.6 x 1.0 mm solder pin; orange

www.wago.com/232-278/047-000



Item no. 232-418/026-000
1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 18-pole; 2,50 mm²; orange

www.wago.com/232-418/026-000



Item no. 232-278/039-000
THT female header; angled; Pin spacing 5.08 mm; 18-pole; Locking lever; 0.6 x 1.0 mm solder pin; orange

www.wago.com/232-278/039-000

Optional accessories

Coding

Coding



Item no.: 231-129
Coding key; snap-on type; light gray

www.wago.com/231-129

Cover

Cover



Item no.: 231-669
Lockout caps; for covering unused clamping units; orange

www.wago.com/231-669

Insulations stops

Insulation stop



Item no.: 231-672
Insulation stop; 0.75 - 1 mm²; dark gray

www.wago.com/231-672



Item no.: 231-670
Insulation stop; 0.08-0.2 mm² / 0.2 mm² "s"; white

www.wago.com/231-670



Item no.: 231-671
Insulation stop; 0.25 - 0.5 mm²; light gray

www.wago.com/231-671

Marking accessories

Marking strip

Item no.: 210-331/508-103
Marking strips; as a DIN A4 sheet; MARKED; 1-12 (200x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white

www.wago.com/210-331/508-103

Item no.: 210-331/508-104
Marking strips; as a DIN A4 sheet; MARKED; 13-24 (200x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white

www.wago.com/210-331/508-104

Item no.: 210-332/508-202

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



Marking strips; as a DIN A4 sheet; MARKED; 1-16 (160x); Height of marker strip: 3 mm; Strip length 182 mm; Horizontal marking; Self-adhesive; white www.wago.com/210-332/508-202

Item no.: 210-332/508-204
Marking strips; as a DIN A4 sheet; MARKED; 17-32 (160x); Height of marker strip: 3 mm; Strip length 182 mm; Horizontal marking; Self-adhesive; white www.wago.com/210-332/508-204

Item no.: 210-332/508-206
Marking strips; as a DIN A4 sheet; MARKED; 33-48 (160x); Height of marker strip: 3 mm; Strip length 182 mm; Horizontal marking; Self-adhesive; white www.wago.com/210-332/508-206

Item no.: 210-332/508-205
Marking strips; as a DIN A4 sheet; MARKED; 1-32 (80x); Height of marker strip: 3 mm; Strip length 182 mm; Horizontal marking; Self-adhesive; white www.wago.com/210-332/508-205

Ferrules

Ferrule

Item no.: 216-101
Ferrule; Sleeve for 0.5 mm² / AWG 22; uninsulated; electro-tin plated; silver-colored www.wago.com/216-101

Item no.: 216-104
Ferrule; Sleeve for 1.5 mm² / AWG 16; uninsulated; electro-tin plated; silver-colored www.wago.com/216-104

Item no.: 216-106
Ferrule; Sleeve for 2.5 mm² / AWG 14; uninsulated; electro-tin plated; silver-colored www.wago.com/216-106

Item no.: 216-102
Ferrule; Sleeve for 0.75 mm² / AWG 20; uninsulated; electro-tin plated; silver-colored www.wago.com/216-102

Item no.: 216-103
Ferrule; Sleeve for 1 mm² / AWG 18; uninsulated; electro-tin plated www.wago.com/216-103

Item no.: 216-123
Ferrule; Sleeve for 1 mm² / AWG 18; uninsulated; electro-tin plated; silver-colored www.wago.com/216-123

Item no.: 216-122
Ferrule; Sleeve for 0.75 mm² / AWG 20; uninsulated; electro-tin plated; silver-colored www.wago.com/216-122

Item no.: 216-124
Ferrule; Sleeve for 1.5 mm² / AWG 16; uninsulated; electro-tin plated www.wago.com/216-124

Item no.: 216-142
Ferrule; Sleeve for 0.75 mm² / 18 AWG; uninsulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92 www.wago.com/216-142

Item no.: 216-132
Ferrule; Sleeve for 0.34 mm² / AWG 24; uninsulated; electro-tin plated www.wago.com/216-132

Item no.: 216-121
Ferrule; Sleeve for 0.5 mm² / AWG 22; uninsulated; electro-tin plated; silver-colored www.wago.com/216-121

Item no.: 216-143
Ferrule; Sleeve for 1 mm² / AWG 18; uninsulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92 www.wago.com/216-143

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









WAGO Corporation
Germantown, WI 53022
Phone: 1-800-DIN-RAIL (346-7245) | Fax: (262) 255-6222
Email: info.us@wago.com | Web: www.wago.us

Do you have any questions about our products?
We are always happy to take your call at +49 (571) 887-44222.








	Item no.: 216-131 Ferrule; Sleeve for 0.25 mm ² / AWG 24; uninsulated; electro-tin plated; silver-colored	www.wago.com/216-131
	Item no.: 216-141 Ferrule; Sleeve for 0.5 mm ² / 20 AWG; uninsulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92	www.wago.com/216-141
	Item no.: 216-152 Ferrule; Sleeve for 0.34 mm ² / AWG 24; uninsulated; electro-tin plated	www.wago.com/216-152
	Item no.: 216-203 Ferrule; Sleeve for 1 mm ² / AWG 18; insulated; electro-tin plated; red	www.wago.com/216-203
	Item no.: 216-202 Ferrule; Sleeve for 0.75 mm ² / 18 AWG; insulated; electro-tin plated; gray	www.wago.com/216-202
	Item no.: 216-151 Ferrule; Sleeve for 0.25 mm ² / AWG 24; uninsulated; electro-tin plated	www.wago.com/216-151
	Item no.: 216-204 Ferrule; Sleeve for 1.5 mm ² / AWG 16; insulated; electro-tin plated; black	www.wago.com/216-204
	Item no.: 216-144 Ferrule; Sleeve for 1.5 mm ² / AWG 16; uninsulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92; silver-colored	www.wago.com/216-144
	Item no.: 216-201 Ferrule; Sleeve for 0.5 mm ² / 20 AWG; insulated; electro-tin plated; white	www.wago.com/216-201
	Item no.: 216-223 Ferrule; Sleeve for 1 mm ² / AWG 18; insulated; electro-tin plated; red	www.wago.com/216-223
	Item no.: 216-241 Ferrule; Sleeve for 0.5 mm ² / 20 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; white	www.wago.com/216-241
	Item no.: 216-242 Ferrule; Sleeve for 0.75 mm ² / 18 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; gray	www.wago.com/216-242
	Item no.: 216-222 Ferrule; Sleeve for 0.75 mm ² / 18 AWG; insulated; electro-tin plated; gray	www.wago.com/216-222
	Item no.: 216-221 Ferrule; Sleeve for 0.5 mm ² / 20 AWG; insulated; electro-tin plated; white	www.wago.com/216-221
	Item no.: 216-224 Ferrule; Sleeve for 1.5 mm ² / AWG 16; insulated; electro-tin plated; black	www.wago.com/216-224
	Item no.: 216-243 Ferrule; Sleeve for 1 mm ² / AWG 18; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; red	www.wago.com/216-243
	Item no.: 216-244 Ferrule; Sleeve for 1.5 mm ² / AWG 16; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; black	www.wago.com/216-244
	Item no.: 216-263	




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

	Ferrule; Sleeve for 1 mm ² / AWG 18; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; red	www.wago.com/216-263
	Item no.: 216-264 Ferrule; Sleeve for 1.5 mm ² / AWG 16; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; black	www.wago.com/216-264
	Item no.: 216-284 Ferrule; Sleeve for 1.5 mm ² / AWG 16; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; black	www.wago.com/216-284
	Item no.: 216-262 Ferrule; Sleeve for 0.75 mm ² / 18 AWG; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; gray	www.wago.com/216-262
	Item no.: 216-301 Ferrule; Sleeve for 0.25 mm ² / AWG 24; insulated; electro-tin plated; yellow	www.wago.com/216-301
	Item no.: 216-321 Ferrule; Sleeve for 0.25 mm ² / AWG 24; insulated; electro-tin plated; yellow	www.wago.com/216-321
	Item no.: 216-322 Ferrule; Sleeve for 0.34 mm ² / 22 AWG; insulated; electro-tin plated; green	www.wago.com/216-322
	Item no.: 216-302 Ferrule; Sleeve for 0.34 mm ² / 22 AWG; insulated; electro-tin plated; light turquoise	www.wago.com/216-302

Jumpers

Jumper		
	Item no.: 231-905 Jumper; for conductor entry; 5-way; insulated; gray	www.wago.com/231-905
	Item no.: 231-903 Jumper; for conductor entry; 3-way; insulated; gray	www.wago.com/231-903
	Item no.: 231-907 Jumper; for conductor entry; 7-way; insulated; gray	www.wago.com/231-907
	Item no.: 231-910 Jumper; for conductor entry; 10-way; insulated; gray	www.wago.com/231-910
	Item no.: 231-902 Jumper; for conductor entry; 2-way; insulated; gray	www.wago.com/231-902

Tools

Operating tool		
	Item no.: 209-130 Operating tool; suitable for 264, 280 and 281 Series; 1-way; of insulating material; white	www.wago.com/209-130
	Item no.: 209-132 Operating tool; for connecting comb-style jumper bar; 2-way; of insulating material	www.wago.com/209-132
	Item no.: 210-657 Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; short; multicoloured	www.wago.com/210-657

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

	Item no.: 210-720 Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured	www.wago.com/210-720
	Item no.: 231-131 Operating tool; made of insulating material; 1-way; loose; white	www.wago.com/231-131
	Item no.: 231-291 Operating tool; made of insulating material; 1-way; loose; red	www.wago.com/231-291
	Item no.: 280-432 Operating tool; made of insulating material; 2-way; white	www.wago.com/280-432
	Item no.: 280-434 Operating tool; made of insulating material; 4-way	www.wago.com/280-434
	Item no.: 280-437 Operating tool; made of insulating material; 7-way	www.wago.com/280-437
	Item no.: 280-440 Operating tool; made of insulating material; 10-way	www.wago.com/280-440
	Item no.: 280-435 Operating tool; made of insulating material; 5-way; gray	www.wago.com/280-435
	Item no.: 280-436 Operating tool; made of insulating material; 6-way	www.wago.com/280-436
	Item no.: 280-438 Operating tool; made of insulating material; 8-way	www.wago.com/280-438
	Item no.: 280-433 Operating tool; made of insulating material; 3-way	www.wago.com/280-433

Downloads

Documentation

Additional Information

Technical explanations	2019 Apr 3	pdf 2.0 MB	Download
------------------------	------------	---------------	----------

CAD files

CAD data

2D/3D Models 231-648	URL	Download
----------------------	-----	----------

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

CAE data

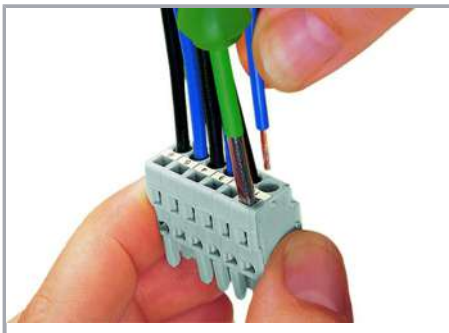
EPLAN Data Portal 231-648	URL	Download
ZUKEN Portal 231-648	URL	Download

Environmental Product Compliance

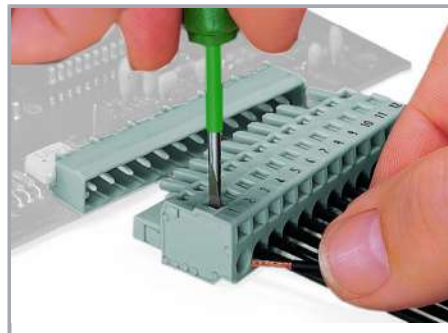
Compliance Search

Environmental Product Compliance 231-648	URL	Download
1-conductor male connector; CAGE CLAMP®; 2.5 mm ² ; Pin spacing 5.08 mm; 18-pole; 2,50 mm ² ; orange		

Installation Notes



Inserting a conductor via 3.5 mm screwdriver – CAGE CLAMP® actuation parallel to conductor entry.



Inserting a conductor via 3.5 mm screwdriver – CAGE CLAMP® actuation perpendicular to conductor entry.



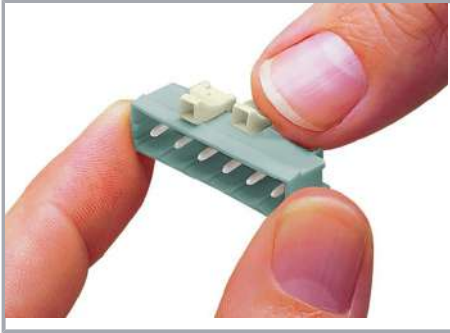
Inserting a conductor into CAGE CLAMP® unit via operating lever (231-291).



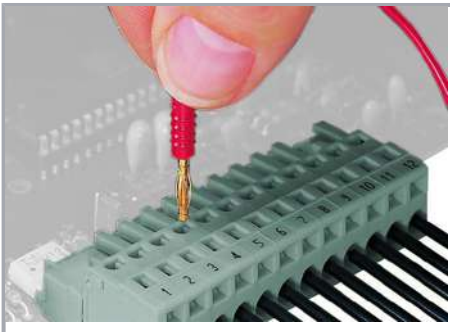
Inserting a conductor via operating tool.

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

Coding



Coding a male header – fitting coding key(s).



Testing – female connector with CAGE CLAMP®

Integrated test ports for testing perpendicular to conductor entry via 2 or 2.3 mm Ø test plug

Installation



Male connector with strain relief plate



Strain relief housing shown with a male connector equipped with CAGE CLAMP®

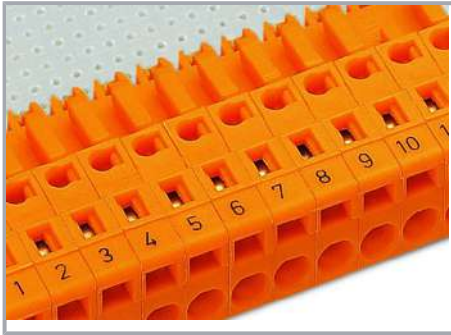
Subject to changes. Please also observe the further product documentation!

Data sheet | Item number: 231-648

www.wago.com/231-648



Marking



Labeling via direct marking or self-adhesive strips.

Product family

MCS MIDI Classic

[Show all products from the family](#)

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

WAGO Corporation
Germantown, WI 53022
Phone: 1-800-DIN-RAIL (346-7245) | Fax: (262) 255-6222
Email: info.us@wago.com | Web: www.wago.us

Do you have any questions about our products?
We are always happy to take your call at +49 (571) 887-44222.