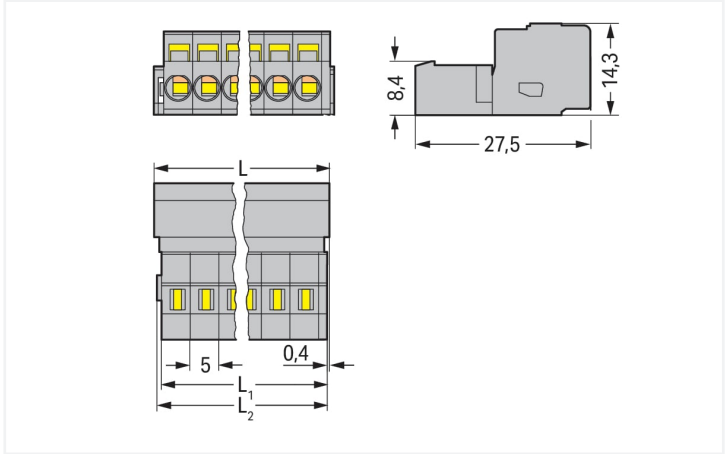
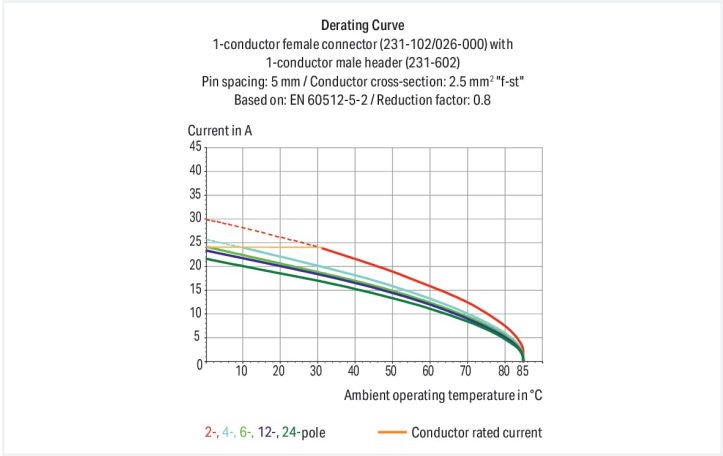




Color: ■ gray



Dimensions in mm  
 $L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$   
 $L1 = L - 1.7 \text{ mm}$   
 $L2 = L - 1.2 \text{ mm}$



- 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
- With coding fingers

Notes	
Safety Information	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. 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 <a href="https://configurator.wago.com/">https://configurator.wago.com/</a> .



Electrical data

Ratings per IEC/EN 60664-1				Approvals per UL 1059			
Overvoltage category	III	III	II	Use group	B	C	D
Pollution degree	3	2	2	Rated voltage	300 V	-	300 V
Nominal voltage	320 V	320 V	630 V	Rated current	15 A	-	10 A
Rated surge voltage	4 kV	4 kV	4 kV				
Rated current	12 A	12 A	12 A				

Approvals per UL 1977				Approvals per CSA			
Rated voltage	600 V			Use group	B	C	D
Rated current	15 A			Rated voltage	300 V	-	300 V
				Rated current	15 A	-	10 A

Connection data

Clamping units	2	<b>Connection 1</b>	
Total number of potentials	2	Connection technology	CAGE CLAMP®
Number of connection types	1	Actuation type	Operating tool
Number of levels	1	Actuation direction 1	Operation parallel to conductor entry
		Actuation direction 2	Operation perpendicular to conductor entry
		Solid conductor	0.08 ... 2.5 mm² / 28 ... 12 AWG
		Fine-stranded conductor	0.08 ... 2.5 mm² / 28 ... 12 AWG
		Fine-stranded conductor; with insulated ferrule	0.25 ... 1.5 mm²
		Fine-stranded conductor; with uninsulated ferrule	0.25 ... 2.5 mm²
		Strip length	8 ... 9 mm / 0.31 ... 0.35 inches
		Pole number	2
		Conductor entry direction to mating direction	0°

Physical data

Pin spacing	5 mm / 0.197 inches
Width	13.2 mm / 0.52 inches
Height	14.3 mm / 0.563 inches
Depth	27.5 mm / 1.083 inches

Mechanical data

Variable coding	Yes
Anti-rotation protection	Yes

Plug-in connection

Contact type (pluggable connector)	Male connector/plug
Connector (connection type)	for conductor
Mismating protection	No



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
Clamping spring material	Chrome-nickel spring steel (CrNi)
Contact material	Electrolytic copper (E <sub>Cu</sub> )
Contact Plating	Tin
Fire load	0.099 MJ
Weight	3.4 g





Environmental requirements	
Limit temperature range	-60 ... +100 °C
Processing temperature	-35 ... +60 °C
Environmental Testing (Environmental Conditions)	
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 <sub>1</sub> = 5 Hz to f <sub>2</sub> = 150 Hz f <sub>1</sub> = 5 Hz to f <sub>2</sub> = 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	3 (Multi Conn. System)	
eCl@ss 10.0	27-44-03-09	
eCl@ss 9.0	27-44-03-09	
ETIM 9.0	EC002638	
ETIM 8.0	EC002638	
PU (SPU)	100 pcs	
Packaging type	Box	
Country of origin	DE	
GTIN	4044918256407	
Customs tariff number	85366930000	

Environmental Product Compliance		
RoHS Compliance Status	Compliant, No Exemption	

Approvals / Certificates

General approvals			Declarations of conformity and manufacturer's declarations		
  					
Approval	Standard	Certificate Name	Approval	Standard	Certificate Name
CB DEKRA Certification B.V.	IEC 61984	NL-39756/A1	Railway WAGO GmbH & Co. KG	-	Railway Ready
CSA DEKRA Certification B.V.	C22.2	LR 18677-25			
KEMA/KEUR DEKRA Certification B.V.	EN 61984	71-121453			
UR Underwriters Laboratories Inc.	UL 1977	E45171			

Approvals for marine applications

  		
Approval	Standard	Certificate Name
ABS American Bureau of Ship- ping	-	19-HG1869876-PDA
DNV DNV GL SE	-	TAE000016Z
LR Lloyds Register	IEC 61984	96/20035 (E5)

Downloads

Environmental Product Compliance

Compliance Search

Environmental Product Compliance 231-602

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Documentation

Additional Information

Technical Section

03.04.2019

pdf

2027.26 KB

↓

CAD/CAE-Data

CAD data

2D/3D Models 231-602

↓

CAE data

EPLAN Data Portal 231-602

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ZUKEN Portal 231-602

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1 Compatible Products

1.1 System counterpart

1.1.1 Female connector/socket

 <div><b>Item No.: 232-102/026-000</b> 1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; 2,50 mm²; gray</div>	 <div><b>Item No.: 232-202/026-000</b> 1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; 2,50 mm²; gray</div>	 <div><b>Item No.: 731-502/031-000</b> 1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; clamping collar; DIN-35 rail/ panel mounting; 2,50 mm²; gray</div>	 <div><b>Item No.: 731-502/008-000</b> 1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; Snap-in mounting feet; 2,50 mm²; gray</div>
 <div><b>Item No.: 231-102/026-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; 2,50 mm²; gray</div>	 <div><b>Item No.: 231-102/031-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; clamping collar; 2,50 mm²; gray</div>	 <div><b>Item No.: 231-102/037-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; Lateral locking levers; 2,50 mm²; gray</div>	 <div><b>Item No.: 231-102/124-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; Snap-in flange; 2,50 mm²; gray</div>
 <div><b>Item No.: 231-102/008-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; Snap-in mounting feet; 2,50 mm²; gray</div>	 <div><b>Item No.: 231-102/102-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; with integrated end plate; 2,50 mm²; gray</div>	 <div><b>Item No.: 2231-1102/327-000</b> 1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; 2,50 mm²; gray</div>	 <div><b>Item No.: 2231-1102/038-000</b> 1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; Lateral locking levers; 2,50 mm²; gray</div>
 <div><b>Item No.: 2231-102/026-000</b> 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; 2,50 mm²; gray</div>	 <div><b>Item No.: 2231-102/031-000</b> 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; clamping collar; 2,50 mm²; gray</div>	 <div><b>Item No.: 2231-102/037-000</b> 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; Lateral locking levers; 2,50 mm²; gray</div>	 <div><b>Item No.: 2231-102/008-000</b> 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 2-pole; Snap-in mounting feet; 2,50 mm²; gray</div>



1.1.1 Female connector/socket



**Item No.: 2231-102/102-000**  
1-conductor female connector; push-but-  
ton; Push-in CAGE CLAMP®; 2.5 mm²; Pin  
spacing 5 mm; 2-pole; with integrated end  
plate; 2,50 mm²; gray



**Item No.: 231-2102/037-000**  
2-conductor female connector; Push-in  
CAGE CLAMP®; 2.5 mm²; Pin spacing 5  
mm; 2-pole; Lateral locking levers; 2,50  
mm²; gray



**Item No.: 231-2102/026-000**  
2-conductor female connector; Push-in  
CAGE CLAMP®; 2.5 mm²; Pin spacing 5  
mm; 2-pole; with integrated end plate;  
2,50 mm²; gray



**Item No.: 232-232/005-000/039-000**  
Female connector for rail-mount terminal  
blocks; 0.6 x 1 mm pins; angled; Locking  
lever; Pin spacing 5 mm; 2-pole; gray



**Item No.: 232-232/005-000**  
Female connector for rail-mount terminal  
blocks; 0.6 x 1 mm pins; angled; Pin spa-  
cing 5 mm; 2-pole; gray



**Item No.: 232-132/005-000/039-000**  
Female connector for rail-mount terminal  
blocks; 0.6 x 1 mm pins; straight; Locking  
lever; Pin spacing 5 mm; 2-pole; gray



**Item No.: 232-132/005-000**  
Female connector for rail-mount terminal  
blocks; 0.6 x 1 mm pins; straight; Pin spa-  
cing 5 mm; 2-pole; gray



**Item No.: 232-232**  
THT female header; angled; Pin spacing 5  
mm; 2-pole; 0.6 x 1.0 mm solder pin; gray



**Item No.: 232-232/031-000**  
THT female header; angled; Pin spacing 5  
mm; 2-pole; clamping collar; 0.6 x 1.0 mm  
solder pin; gray



**Item No.: 232-232/039-000**  
THT female header; angled; Pin spacing 5  
mm; 2-pole; Locking lever; 0.6 x 1.0 mm  
solder pin; gray



**Item No.: 232-232/047-000**  
THT female header; angled; Pin spacing 5  
mm; 2-pole; Spacer flange; 0.6 x 1.0 mm  
solder pin; gray



**Item No.: 232-132**  
THT female header; straight; Pin spacing 5  
mm; 2-pole; 0.6 x 1.0 mm solder pin; gray



**Item No.: 232-132/031-000**  
THT female header; straight; Pin spacing 5  
mm; 2-pole; clamping collar; 0.6 x 1.0 mm  
solder pin; gray



**Item No.: 232-132/039-000**  
THT female header; straight; Pin spacing  
5 mm; 2-pole; Locking lever; 0.6 x 1.0 mm  
solder pin; gray



**Item No.: 232-132/047-000**  
THT female header; straight; Pin spacing 5  
mm; 2-pole; Spacer flange; 0.6 x 1.0 mm  
solder pin; gray

1.2 Optional Accessories

1.2.1 Coding

1.2.1.1 Coding



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

1.2.2 Cover

1.2.2.1 Cover



**Item No.: 231-668**  
Lockout caps; for covering unused clam-  
ping units; gray

1.2.3 Ferrule

1.2.3.1 Ferrule



**Item No.: 216-301**  
Ferrule; Sleeve for 0.25 mm² / AWG 24; in-  
sulated; electro-tin plated; yellow



**Item No.: 216-302**  
Ferrule; Sleeve for 0.34 mm² / 22 AWG; in-  
sulated; electro-tin plated; light turquoise



**Item No.: 216-241**  
Ferrule; Sleeve for 0.5 mm² / 20 AWG; in-  
sulated; electro-tin plated; electrolytic  
copper; gastight crimped; acc. to DIN  
46228, Part 4/09.90; white



**Item No.: 216-201**  
Ferrule; Sleeve for 0.5 mm² / 20 AWG; in-  
sulated; electro-tin plated; white



1.2.3.1 Ferrule

 <b>Item No.: 216-141</b> Ferrule; Sleeve for 0.5 mm² / 20 AWG; un-insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92	 <b>Item No.: 216-101</b> Ferrule; Sleeve for 0.5 mm² / AWG 22; un-insulated; electro-tin plated; silver-colored	 <b>Item No.: 216-242</b> 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	 <b>Item No.: 216-262</b> 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
 <b>Item No.: 216-202</b> Ferrule; Sleeve for 0.75 mm² / 18 AWG; insulated; electro-tin plated; gray	 <b>Item No.: 216-142</b> Ferrule; Sleeve for 0.75 mm² / 18 AWG; un-insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92	 <b>Item No.: 216-102</b> Ferrule; Sleeve for 0.75 mm² / AWG 20; un-insulated; electro-tin plated; silver-colored	 <b>Item No.: 216-243</b> Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; red
 <b>Item No.: 216-263</b> Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; red	 <b>Item No.: 216-203</b> Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated; red	 <b>Item No.: 216-103</b> Ferrule; Sleeve for 1 mm² / AWG 18; un-insulated; electro-tin plated	 <b>Item No.: 216-143</b> Ferrule; Sleeve for 1 mm² / AWG 18; un-insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92
 <b>Item No.: 216-204</b> Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; black	 <b>Item No.: 216-244</b> 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	 <b>Item No.: 216-264</b> 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	 <b>Item No.: 216-284</b> 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
 <b>Item No.: 216-144</b> Ferrule; Sleeve for 1.5 mm² / AWG 16; un-insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92; silver-colored	 <b>Item No.: 216-104</b> Ferrule; Sleeve for 1.5 mm² / AWG 16; un-insulated; electro-tin plated; silver-colored	 <b>Item No.: 216-106</b> Ferrule; Sleeve for 2.5 mm² / AWG 14; un-insulated; electro-tin plated; silver-colored	


1.2.4 Insulation stop

1.2.4.1 Insulation stop

 <b>Item No.: 231-670</b> Insulation stop; 0.08-0.2 mm² / 0.2 mm² "s"; white	 <b>Item No.: 231-671</b> Insulation stop; 0.25 - 0.5 mm²; light gray	 <b>Item No.: 231-672</b> Insulation stop; 0.75 - 1 mm²; dark gray
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1.2.5 Jumper

1.2.5.1 Jumper

 <b>Item No.: 231-902</b> Jumper; for conductor entry; 2-way; insulated; gray
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1.2.6 Marking

1.2.6.1 Marking strip



**Item No.: 210-331/500-103**  
Marking strips; as a DIN A4 sheet; MARKED; 1-12 (300x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white



**Item No.: 210-332/500-202**  
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



**Item No.: 210-332/500-205**  
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



**Item No.: 210-331/500-104**  
Marking strips; as a DIN A4 sheet; MARKED; 13-24 (300x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white



**Item No.: 210-332/500-204**  
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



**Item No.: 210-332/500-206**  
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

1.2.7 Strain relief

1.2.7.1 Strain relief housing



**Item No.: 232-602**  
Strain relief housing; for female and male connectors; 2 parts; Pin spacing 5 mm; 2-pole; gray

1.2.8 Tool

1.2.8.1 Operating tool



**Item No.: 231-231**  
Combination operating tool; red



**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



**Item No.: 209-132**  
Operating tool; for connecting comb-style jumper bar; made of insulating material; 2-way; natural



**Item No.: 210-250**  
Operating tool; for MCS MINI and MIDI with CAGE CLAMP® connection; red



**Item No.: 209-130**  
Operating tool; made of insulating material; 1-way; for 264 Series (1-/2-way), 280, 281 Series (up to 3-way); natural



**Item No.: 231-291**  
Operating tool; made of insulating material; 1-way; loose; red



**Item No.: 231-131**  
Operating tool; made of insulating material; 1-way; loose; white



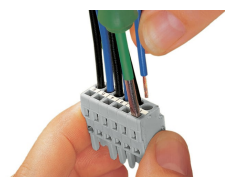
**Item No.: 280-432**  
Operating tool; made of insulating material; 2-way; white



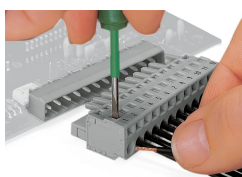
**Item No.: 231-159**  
Operating tool; natural

## Installation Notes

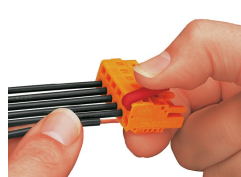
### Conductor termination



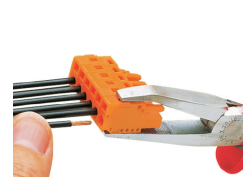
Inserting a conductor via 3.5 mm screwdriver – CAGE CLAMP® actuation parallel to conductor entry.



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

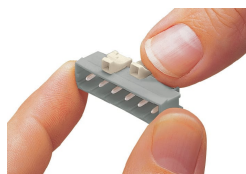


Inserting a conductor into CAGE CLAMP® unit via operating tool (231-291).



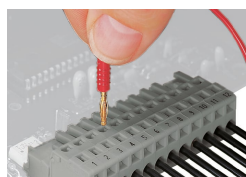
Inserting a conductor via operating tool.

### Coding



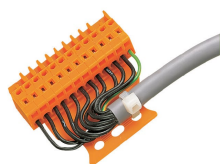
Coding a male header – fitting coding key(s).

### Testing



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

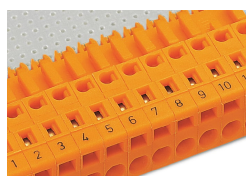


Male connector with strain relief plate



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

### Marking



Labeling via direct marking or self-adhesive strips.