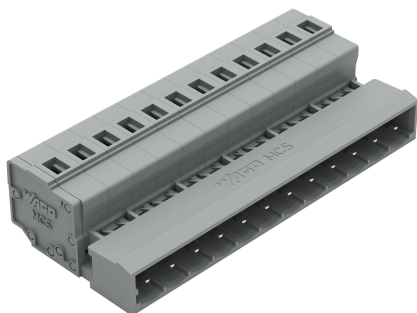


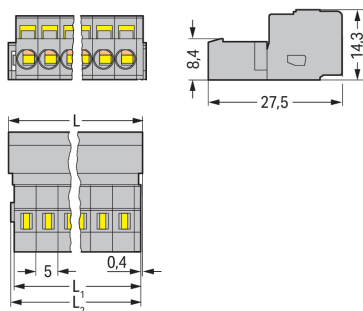
Data Sheet | Item Number: 231-612

1-conductor male connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole;
gray

<https://www.wago.com/231-612>

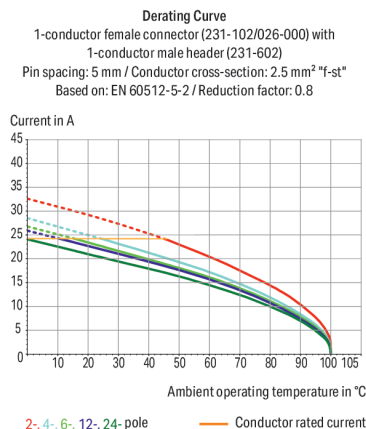


Color: ■ gray



Dimensions in mm

$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L_1 = L - 1.7 \text{ mm}$
 $L_2 = L - 1.2 \text{ mm}$



Male connector, 231 Series, CAGE CLAMP®

Error-free electrical installations are guaranteed with this male connector (item number 231-612). Conductors should only be connected to this male connector if their strip length is between 8 and 9 mm. Featuring one conductor terminal along with CAGE CLAMP®, this connector is highly versatile. Our CAGE CLAMP® connection provides a safe and maintenance-free way to connect all types of conductors. You do not need to prepare the conductor in any way, such as crimping ferrules. The item's dimensions are (63.2 x 14.3 x 27.5) mm (width x height x depth). Depending on the conductor type, this male connector is suitable for conductor cross sections ranging from 0.08 mm² to 2.5 mm². The contact surface is coated with tin.



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 https://configurator.wago.com/ .

Electrical data				
Ratings per		IEC/EN 60664-1		
Overvoltage category		III	III	II
Pollution degree		3	2	2
Nominal voltage		320 V	320 V	630 V
Rated impulse withstand voltage		4 kV	4 kV	4 kV
Rated current		12 A	12 A	12 A
Approvals per		UL 1059		
Use group		B	C	D
Rated voltage		300 V	-	300 V
Rated current		15 A	-	10 A
Approvals per		UL 1977		
Rated voltage		600 V		
Rated current		15 A		
Approvals per		CSA		
Use group		B	C	D
Rated voltage		300 V	-	300 V
Rated current		15 A	-	10 A

Connection Data		
Clamping units	12	
Total number of potentials	12	
Number of connection types	1	
Number of levels	1	
Connection 1		
Connection technology	CAGE CLAMP®	
Actuation type	Operating tool	
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	12	
Conductor entry direction to mating direction	0 °	

Physical data	
Pin spacing	5 mm / 0.197 inches
Width	63.2 mm / 2.488 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)	Information on material specifications can be found here
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 _{Cu})
Contact Plating	Tin
Fire load	0.304 MJ
Weight	18 g

Environmental requirements		
Limit temperature range	-60 ... +100 °C	Environmental Testing
Processing temperature	-35 ... +60 °C	
		Test specification: Railway applications – Rolling stock – Electronic equipment
		DIN EN 50155 (VDE 0115-200):2022-06
		Test procedure: Railway applications – Rolling stock equipment – Vibration and shock tests
		DIN EN 61373 (VDE 0115-0106):2011-04
		Spectrum/Mounting location
		Service life test, Category 1, Class A/B
		Functional test with noise-like oscillations
		Test passed according to Section 8 of the standard
		Frequency
		f ₁ = 5 Hz to f ₂ = 150 Hz
		Acceleration
		0.101g (highest test level used for all axes)
		Test duration per axis
		10 min.
		Test directions
		X, Y and Z axes
		Monitoring of contact faults and interruptions
		Passed
		Voltage drop measurement before and after each axis
		Passed
		Simulated service life test through increased levels of noise-like oscillations
		Test passed according to Section 9 of the standard
		Frequency
		f ₁ = 5 Hz to f ₂ = 150 Hz
		Acceleration
		0.572g (highest test level used for all axes)
		Test duration per axis
		5 h
		Test directions
		X, Y and Z axes
		Extended testing: Monitoring of contact faults and interruptions
		Passed
		Extended testing: Voltage drop measurement before and after each axis
		Passed
		Shock test
		Test passed according to Section 10 of the standard
		Shock pulse form
		Half sine
		Acceleration
		5g (highest test level used for all axes)



Environmental Testing	
Shock duration	30 ms
Number of shocks (per axis)	3 pos. und 3 neg.
Test directions	X, Y and Z axes
Extended testing: Monitoring of contact faults and interruptions	Passed
Extended testing: Voltage drop measurement before and after each axis	Passed
Vibration and shock stress for rolling stock equipment	Passed

Commercial data	
Product Group	3 (Multi Conn. System)
PU (SPU)	25 pcs
Packaging type	Box
Country of origin	DE
GTIN	4044918258302
Customs tariff number	85366930000

Product Classification	
UNSPSC	39121409
eCl@ss 10.0	27-44-03-09
eCl@ss 9.0	27-44-03-09
ETIM 9.0	EC002638
ETIM 10.0	EC002638
ECCN	NO US CLASSIFICATION

Environmental Product Compliance	
RoHS Compliance Status	Compliant,No Exemption

Approvals / Certificates

General approvals



Approval	Standard	Certificate Name
CB DEKRA Certification B.V.	IEC 61984	NL-113351
CSA DEKRA Certification B.V.	C22.2	1466354
KEMA/KEUR DEKRA Certification B.V.	EN 61984	71-130478 REV.1
UL Underwriters Laboratories Inc.	UL 1059	E45172
UR Underwriters Laboratories Inc.	UL 1977	E45171

Declarations of conformity and manufacturer's declarations



Approval	Standard	Certificate Name
Railway WAGO GmbH & Co. KG	-	Railway Ready



Approvals for marine applications



Approval	Standard	Certificate Name
ABS American Bureau of Ship- ping	-	24-0095975-PDA
DNV DNV GL SE	-	TAE000016Z
LR Lloyds Register	IEC 61984	96/20035 (E5)
PRS Polski Rejestr Statków	-	TE/1095/880590/23

Downloads

Environmental Product Compliance

Compliance Search
Environmental Product Compliance 231-612



Documentation

Additional Information
Technical Section
03.04.2019
pdf 2027.26 KB



CAD/CAE-Data

CAD data
2D/3D Models 231-612



CAE data
EPLAN Data Portal 231-612
ZUKEN Portal 231-612



1 Compatible Products

1.1 System counterpart

1.1.1 Female connector/socket



[Item No.: 232-112/026-000](#)
1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5
mm; 12-pole; 2,50 mm²; gray



[Item No.: 232-212/026-000](#)
1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5
mm; 12-pole; 2,50 mm²; gray



[Item No.: 731-512/031-000](#)
1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5
mm; 12-pole; clamping collar; DIN-35 rail/
panel mounting; 2,50 mm²; gray



[Item No.: 731-512/008-000](#)
1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5
mm; 12-pole; Snap-in mounting feet; 2,50
mm²; gray



[Item No.: 231-112/027-000](#)
1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-
pole; clamping collar; gray



[Item No.: 231-112/031-000](#)
1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-
pole; clamping collar; gray



[Item No.: 231-112/026-000](#)
1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-
pole; gray



[Item No.: 231-112/037-000](#)
1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-
pole; Lateral locking levers; gray

1.1.1 Female connector/socket

**Item No.: 231-112/125-000**

1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; Snap-in flange; gray

**Item No.: 231-112/008-000**

1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; Snap-in mounting feet; gray

**Item No.: 231-112/102-000**

1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; with integrated end plate; gray

**Item No.: 2231-1112/327-000**

1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; 2,50 mm²; gray

**Item No.: 2231-1112/329-000**

1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; Centered locking levers; gray

**Item No.: 2231-1112/329-000/336-000**

1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; Centered locking levers; Strain relief plate; gray

**Item No.: 2231-1112/327-047**

1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; direct marking; 2,50 mm²; gray

**Item No.: 2231-1112/327-9037**

1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; direct marking; 2,50 mm²; gray

**Item No.: 2231-1112/038-000**

1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; Lateral locking levers; 2,50 mm²; gray

**Item No.: 2231-1112/038-000/336-000**

1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; Lateral locking levers; Strain relief plate; gray

**Item No.: 2231-1112/327-000/336-000**

1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; Strain relief plate; gray

**Item No.: 2231-1112/026-000**

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; 2,50 mm²; gray

**Item No.: 2231-1112/031-000**

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; clamping collar; 2,50 mm²; gray

**Item No.: 2231-1112/037-000**

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; Lateral locking levers; 2,50 mm²; gray

**Item No.: 2231-1112/008-000**

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; Snap-in mounting feet; 2,50 mm²; gray

**Item No.: 2231-1112/102-000**

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; with integrated end plate; 2,50 mm²; gray

**Item No.: 231-2112/037-000**

2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; Lateral locking levers; gray

**Item No.: 231-2112/026-000**

2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-pole; with integrated end plate; gray

**Item No.: 232-242/005-000/039-000**

Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; angled; Locking lever; Pin spacing 5 mm; 12-pole; gray

**Item No.: 232-242/005-000**

Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; angled; Pin spacing 5 mm; 12-pole; gray

**Item No.: 232-142/005-000/039-000**

Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; straight; Locking lever; Pin spacing 5 mm; 12-pole; gray

**Item No.: 232-142/005-000**

Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; straight; Pin spacing 5 mm; 12-pole; gray

**Item No.: 232-242**

THT female header; angled; Pin spacing 5 mm; 12-pole; 0.6 x 1.0 mm solder pin; gray

**Item No.: 232-242/031-000**

THT female header; angled; Pin spacing 5 mm; 12-pole; clamping collar; 0.6 x 1.0 mm solder pin; gray

**Item No.: 232-242/039-000**

THT female header; angled; Pin spacing 5 mm; 12-pole; Locking lever; 0.6 x 1.0 mm solder pin; gray

**Item No.: 232-242/047-000**

THT female header; angled; Pin spacing 5 mm; 12-pole; Spacer flange; 0.6 x 1.0 mm solder pin; gray

**Item No.: 232-142**

THT female header; straight; Pin spacing 5 mm; 12-pole; 0.6 x 1.0 mm solder pin; gray

**Item No.: 232-142/031-000**

THT female header; straight; Pin spacing 5 mm; 12-pole; clamping collar; 0.6 x 1.0 mm solder pin; gray

**Item No.: 232-142/039-000**

THT female header; straight; Pin spacing 5 mm; 12-pole; Locking lever; 0.6 x 1.0 mm solder pin; gray

**Item No.: 232-142/047-000**

THT female header; straight; Pin spacing 5 mm; 12-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 clamping units; gray

1.2.3 Ferrule

1.2.3.1 Ferrule



[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; light turquoise



[Item No.: 216-201](#)
Ferrule; Sleeve for 0.5 mm² / 20 AWG; insulated; electro-tin plated; electrolytic copper; acc. to DIN 46228, Part 4/09.90; white



[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.: 216-141](#)
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



[Item No.: 216-101](#)
Ferrule; Sleeve for 0.5 mm² / AWG 22; un-insulated; electro-tin plated; silver-colored



[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.: 216-202](#)
Ferrule; Sleeve for 0.75 mm² / 18 AWG; insulated; electro-tin plated; gray



[Item No.: 216-142](#)
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



[Item No.: 216-102](#)
Ferrule; Sleeve for 0.75 mm² / AWG 20; un-insulated; electro-tin plated; silver-colored



[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.: 216-203](#)
Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated; red



[Item No.: 216-103](#)
Ferrule; Sleeve for 1 mm² / AWG 18; un-insulated; electro-tin plated



[Item No.: 216-143](#)
Ferrule; Sleeve for 1 mm² / AWG 18; un-insulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 1/08.92



[Item No.: 216-204](#)
Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; black



[Item No.: 216-244](#)
Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; black



[Item No.: 216-264](#)
Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; black



[Item No.: 216-284](#)
Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; black



[Item No.: 216-144](#)
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



[Item No.: 216-104](#)
Ferrule; Sleeve for 1.5 mm² / AWG 16; un-insulated; electro-tin plated; silver-colored



[Item No.: 216-106](#)
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



[Item No.: 231-670](#)
Insulation stop; 0.08-0.2 mm² / 0.2 mm²
"s"; white



[Item No.: 231-671](#)
Insulation stop; 0.25 - 0.5 mm²; light gray



[Item No.: 231-672](#)
Insulation stop; 0.75 - 1 mm²; dark gray

1.2.5 Jumper

1.2.5.1 Jumper



[Item No.: 231-910](#)
Jumper; for conductor entry; 10-way; insulated; gray



[Item No.: 231-902](#)
Jumper; for conductor entry; 2-way; insulated; gray



[Item No.: 231-903](#)
Jumper; for conductor entry; 3-way; insulated; gray



[Item No.: 231-905](#)
Jumper; for conductor entry; 5-way; insulated; gray



[Item No.: 231-907](#)
Jumper; for conductor entry; 7-way; insulated; gray

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.: 232-612](#)
Strain relief housing; for female and male connectors; 2 parts; Pin spacing 5 mm; 12-pole; gray



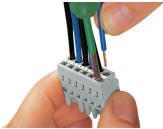
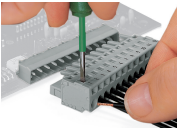
1.2.8 Tool

1.2.8.1 Operating tool

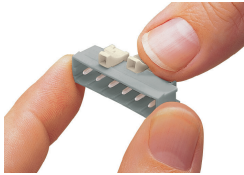
 Item No.: 231-231 Combination operating tool; red	 Item No.: 210-720 Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured	 Item No.: 210-657 Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; short; multicoloured	 Item No.: 209-132 Operating tool; for 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.: 280-440 Operating tool; made of insulating material; 10-way; white	 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.: 280-433 Operating tool; made of insulating material; 3-way; white	 Item No.: 280-434 Operating tool; made of insulating material; 4-way; white
 Item No.: 280-435 Operating tool; made of insulating material; 5-way; gray	 Item No.: 280-436 Operating tool; made of insulating material; 6-way; white	 Item No.: 280-437 Operating tool; made of insulating material; 7-way; white	 Item No.: 280-438 Operating tool; made of insulating material; 8-way; white
 Item No.: 231-159 Operating tool; natural			

Installation Notes

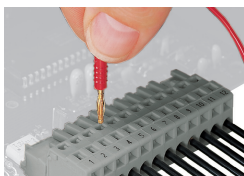
Conductor termination

			
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).

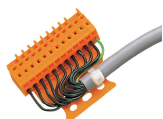
Testing



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

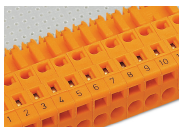


Male connector with strain relief plate



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

Marking



Labeling via direct marking or self-adhesive strips.