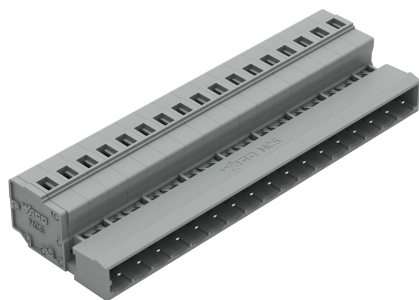


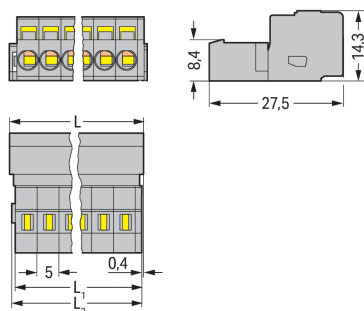
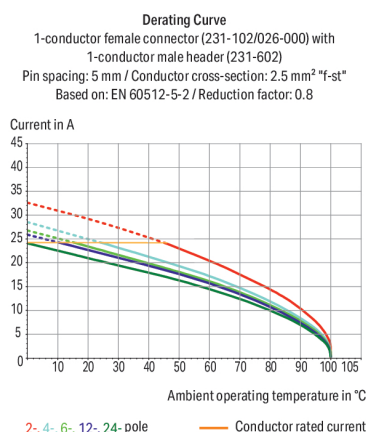
Data Sheet | Item Number: 231-617

1-conductor male connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 17-pole; gray

<https://www.wago.com/231-617>



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®

Effortless electrical installations are guaranteed with this male connector (item number 231-617). Strip lengths must be between 8 and 9 mm when connecting conductors to this male connector. This product features one conductor terminal and utilizes CAGE CLAMP®. Our CAGE CLAMP® connection provides a convenient 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 dimensions are (88.2 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 – <i>MULTI CONNECTION SYSTEM</i> 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	17
Total number of potentials	17
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	17
Conductor entry direction to mating direction	0 °

Physical data	
Pin spacing	5 mm / 0.197 inches
Width	88.2 mm / 3.472 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	0.382 MJ
Weight	25.4 g

Environmental requirements																																														
Limit temperature range	-60 ... +100 °C	<table><tr><th colspan="2">Environmental Testing</th></tr><tr><td>Test specification: Railway applications – Rolling stock – Electronic equipment</td><td>DIN EN 50155 (VDE 0115-200):2022-06</td></tr><tr><td>Test procedure: Railway applications – Rolling stock equipment – Vibration and shock tests</td><td>DIN EN 61373 (VDE 0115-0106):2011-04</td></tr><tr><td>Spectrum/Mounting location</td><td>Service life test, Category 1, Class A/B</td></tr><tr><td>Functional test with noise-like oscillations</td><td>Test passed according to Section 8 of the standard</td></tr><tr><td>Frequency</td><td>f₁ = 5 Hz to f₂ = 150 Hz</td></tr><tr><td>Acceleration</td><td>0.101g (highest test level used for all axes)</td></tr><tr><td>Test duration per axis</td><td>10 min.</td></tr><tr><td>Test directions</td><td>X, Y and Z axes</td></tr><tr><td>Monitoring of contact faults and interruptions</td><td>Passed</td></tr><tr><td>Voltage drop measurement before and after each axis</td><td>Passed</td></tr><tr><td>Simulated service life test through increased levels of noise-like oscillations</td><td>Test passed according to Section 9 of the standard</td></tr><tr><td>Frequency</td><td>f₁ = 5 Hz to f₂ = 150 Hz</td></tr><tr><td>Acceleration</td><td>0.572g (highest test level used for all axes)</td></tr><tr><td>Test duration per axis</td><td>5 h</td></tr><tr><td>Test directions</td><td>X, Y and Z axes</td></tr><tr><td>Extended testing: Monitoring of contact faults and interruptions</td><td>Passed</td></tr><tr><td>Extended testing: Voltage drop measurement before and after each axis</td><td>Passed</td></tr><tr><td>Shock test</td><td>Test passed according to Section 10 of the standard</td></tr><tr><td>Shock pulse form</td><td>Half sine</td></tr><tr><td>Acceleration</td><td>5g (highest test level used for all axes)</td></tr><tr><td>Shock duration</td><td>30 ms</td></tr></table>	Environmental Testing		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)	Shock duration	30 ms
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Shock pulse form	Half sine																																													
Acceleration	5g (highest test level used for all axes)																																													
Shock duration	30 ms																																													
Processing temperature	-35 ... +60 °C																																													



Environmental Testing	
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	4044918258982	
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			Declarations of conformity and manufacturer's declarations		
   					
Approval	Standard	Certificate Name	Approval	Standard	Certificate Name
CB DEKRA Certification B.V.	IEC 61984	NL-113351	Railway WAGO GmbH & Co. KG	-	Railway Ready
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			



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 231-617



Documentation

Additional Information
Technical Section
03.04.2019
pdf 2027.26 KB



CAD/CAE-Data

CAD data
2D/3D Models 231-617



CAE data
EPLAN Data Portal 231-617
ZUKEN Portal 231-617



1 Compatible Products

1.1 System counterpart

1.1.1 Female connector/socket



Item No.: 232-117/026-000
1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm;
17-pole; 2,50 mm²; gray



Item No.: 232-217/026-000
1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm;
17-pole; 2,50 mm²; gray



Item No.: 731-517/031-000
1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm;
17-pole; clamping collar; DIN-35 rail/panel
mounting; 2,50 mm²; gray



Item No.: 731-517/008-000
1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm;
17-pole; Snap-in mounting feet; 2,50 mm²;
gray



Item No.: 231-117/027-000
1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 17-
pole; clamping collar; gray



Item No.: 231-117/031-000
1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 17-
pole; clamping collar; gray



Item No.: 231-117/026-000
1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 17-
pole; gray



Item No.: 231-117/037-000
1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 17-
pole; Lateral locking levers; gray



1.1.1 Female connector/socket

 Item No.: 231-117/008-000 1-conductor female connector; CAGE CLAMP®; 2.5 mm ² ; Pin spacing 5 mm; 17-pole; Snap-in mounting feet; gray	 Item No.: 231-117/102-000 1-conductor female connector; CAGE CLAMP®; 2.5 mm ² ; Pin spacing 5 mm; 17-pole; with integrated end plate; gray	 Item No.: 2231-117/026-000 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm ² ; Pin spacing 5 mm; 17-pole; 2,50 mm ² ; gray	 Item No.: 2231-117/031-000 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm ² ; Pin spacing 5 mm; 17-pole; clamping collar; 2,50 mm ² ; gray
 Item No.: 2231-117/037-000 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm ² ; Pin spacing 5 mm; 17-pole; Lateral locking levers; 2,50 mm ² ; gray	 Item No.: 2231-117/008-000 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm ² ; Pin spacing 5 mm; 17-pole; Snap-in mounting feet; 2,50 mm ² ; gray	 Item No.: 2231-117/102-000 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm ² ; Pin spacing 5 mm; 17-pole; with integrated end plate; 2,50 mm ² ; gray	 Item No.: 232-247 THT female header; angled; Pin spacing 5 mm; 17-pole; 0.6 x 1.0 mm solder pin; gray
 Item No.: 232-247/031-000 THT female header; angled; Pin spacing 5 mm; 17-pole; clamping collar; 0.6 x 1.0 mm solder pin; gray	 Item No.: 232-247/039-000 THT female header; angled; Pin spacing 5 mm; 17-pole; Locking lever; 0.6 x 1.0 mm solder pin; gray	 Item No.: 232-247/047-000 THT female header; angled; Pin spacing 5 mm; 17-pole; Spacer flange; 0.6 x 1.0 mm solder pin; gray	 Item No.: 232-147 THT female header; straight; Pin spacing 5 mm; 17-pole; 0.6 x 1.0 mm solder pin; gray
 Item No.: 232-147/031-000 THT female header; straight; Pin spacing 5 mm; 17-pole; clamping collar; 0.6 x 1.0 mm solder pin; gray	 Item No.: 232-147/039-000 THT female header; straight; Pin spacing 5 mm; 17-pole; Locking lever; 0.6 x 1.0 mm solder pin; gray	 Item No.: 232-147/047-000 THT female header; straight; Pin spacing 5 mm; 17-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 mm ² / AWG 24; insulated; electro-tin plated; yellow	 Item No.: 216-302 Ferrule; Sleeve for 0.34 mm ² / 22 AWG; insulated; electro-tin plated; light turquoise	 Item No.: 216-201 Ferrule; Sleeve for 0.5 mm ² / 20 AWG; insulated; electro-tin plated; electrolytic copper; acc. to DIN 46228, Part 4/09.90; white	 Item No.: 216-101 Ferrule; Sleeve for 0.5 mm ² / AWG 22; uninsulated; electro-tin plated; silver-colored
 Item No.: 216-202 Ferrule; Sleeve for 0.75 mm ² / 18 AWG; insulated; electro-tin plated; gray	 Item No.: 216-102 Ferrule; Sleeve for 0.75 mm ² / 18 AWG; uninsulated; electro-tin plated; silver-colored	 Item No.: 216-203 Ferrule; Sleeve for 1 mm ² / AWG 18; insulated; electro-tin plated; red	 Item No.: 216-103 Ferrule; Sleeve for 1 mm ² / AWG 18; uninsulated; electro-tin plated



1.2.3.1 Ferrule



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



Item No.: 216-104
Ferrule; Sleeve for 1.5 mm² / AWG 16; uninsulated; 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



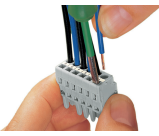
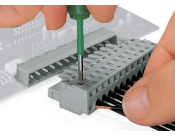
1.2.7 Tool

1.2.7.1 Operating tool

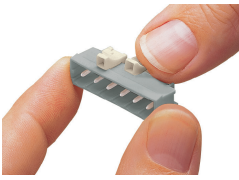
 Item No.: 231-231 Combination operating tool; red	 Item No.: 210-720 Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured	 Item No.: 210-657 Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; short; multi-coloured	 Item No.: 209-132 Operating tool; 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).

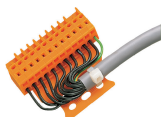
Testing



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.