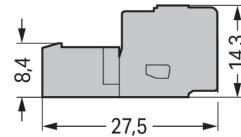
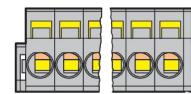


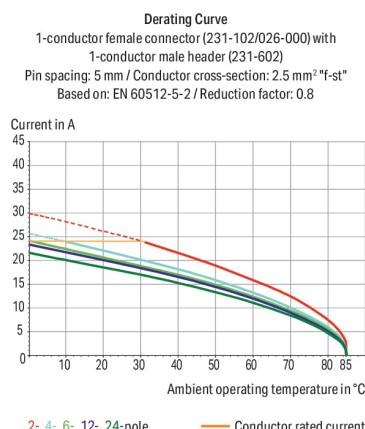


Color: ■ gray



Dimensions in mm

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



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

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 surge 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	3
Total number of potentials	3
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 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 inches	
Pole number	3	
Conductor entry direction to mating direction	0 °	

Physical data

Pin spacing	5 mm / 0.197 inches
Width	18.2 mm / 0.717 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	0.138 MJ
Weight	4.9 g

Environmental requirements

Limit temperature range	-60 ... +100 °C
Processing temperature	-35 ... +60 °C

Environmental Testing (Environmental Conditions)

Test specification	DIN EN 50155 (VDE 0115-200):2022-06
Railway applications – Rolling stock – Electronic equipment	
Test procedure	DIN EN 61373 (VDE 0115-0106):2011-04
Railway applications – Rolling stock equipment – Shock and vibration tests	
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	$f_1 = 5 \text{ Hz}$ to $f_2 = 150 \text{ Hz}$ $f_1 = 5 \text{ Hz}$ to $f_2 = 150 \text{ Hz}$
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	4044918256605
Customs tariff number	85366930000

Environmental Product Compliance

RoHS Compliance Status	Compliant, No Exemption
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Approvals / Certificates**General approvals**

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 Shipping	-	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 231-603



Documentation

Additional Information

Technical Section

03.04.2019

pdf

2027.26 KB



CAD/CAE-Data

CAD data

2D/3D Models 231-603



CAE data

EPLAN Data Portal
231-603



ZUKEN Portal 231-603



1 Compatible Products

1.1 System counterpart

1.1.1 Female connector/socket



[Item No.: 232-103/026-000](#)

1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5
mm; 3-pole; 2,50 mm²; gray

[Item No.: 232-203/026-000](#)

1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5
mm; 3-pole; 2,50 mm²; gray

[Item No.: 731-503/031-000](#)

1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5
mm; 3-pole; clamping collar; DIN-35 rail/
panel mounting; 2,50 mm²; gray

[Item No.: 731-503/008-000](#)

1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 5
mm; 3-pole; Snap-in mounting feet; 2,50
mm²; gray



[Item No.: 231-103/026-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 3-
pole; 2,50 mm²; gray

[Item No.: 231-103/031-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 3-
pole; clamping collar; 2,50 mm²; gray

[Item No.: 231-103/037-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 3-
pole; Lateral locking levers; 2,50 mm²;
gray

[Item No.: 231-103/124-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 3-
pole; Snap-in flange; 2,50 mm²; gray



[Item No.: 231-103/008-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 3-
pole; Snap-in mounting feet; 2,50 mm²;
gray

[Item No.: 231-103/102-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 5 mm; 3-
pole; with integrated end plate; 2,50 mm²;
gray

[Item No.: 2231-1103/327-000](#)

1-conductor female connector; lever; Pu-
sh-in CAGE CLAMP®; 2.5 mm²; Pin spa-
cing 5 mm; 3-pole; 2,50 mm²; gray

[Item No.: 2231-1103/038-000](#)

1-conductor female connector; lever; Pu-
sh-in CAGE CLAMP®; 2.5 mm²; Pin spa-
cing 5 mm; 3-pole; Lateral locking levers;
2,50 mm²; gray



[Item No.: 2231-103/026-000](#)

1-conductor female connector; push-but-
ton; Push-in CAGE CLAMP®; 2.5 mm²; Pin
spacing 5 mm; 3-pole; 2,50 mm²; gray

[Item No.: 2231-103/031-000](#)

1-conductor female connector; push-
button; Push-in CAGE CLAMP®; 2.5 mm²;
Pin spacing 5 mm; 3-pole; clamping col-
lar; 2,50 mm²; gray

[Item No.: 2231-103/037-000](#)

1-conductor female connector; push-
button; Push-in CAGE CLAMP®; 2.5 mm²;
Pin spacing 5 mm; 3-pole; Lateral locking
levers; 2,50 mm²; gray

[Item No.: 2231-103/008-000](#)

1-conductor female connector; push-but-
ton; Push-in CAGE CLAMP®; 2.5 mm²; Pin
spacing 5 mm; 3-pole; Snap-in mounting
feet; 2,50 mm²; gray

1.1.1 Female connector/socket



Item No.: 2231-103/026-000/133-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 3-pole; Strain relief plate; 2,50 mm²; gray

Item No.: 2231-103/102-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 3-pole; with integrated end plate; 2,50 mm²; gray

Item No.: 231-2103/037-000
2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 3-pole; Lateral locking levers; 2,50 mm²; gray

Item No.: 231-2103/026-000
2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 3-pole; with integrated end plate; 2,50 mm²; gray



Item No.: 232-233/005-000/039-000
Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; angled; Locking lever; Pin spacing 5 mm; 3-pole; gray

Item No.: 232-233/005-000
Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; angled; Pin spacing 5 mm; 3-pole; gray

Item No.: 232-133/005-000/039-000
Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; straight; Locking lever; Pin spacing 5 mm; 3-pole; gray

Item No.: 232-133/005-000
Female connector for rail-mount terminal blocks; 0.6 x 1 mm pins; straight; Pin spacing 5 mm; 3-pole; gray



Item No.: 232-233
THT female header; angled; Pin spacing 5 mm; 3-pole; 0.6 x 1.0 mm solder pin; gray

Item No.: 232-233/031-000
THT female header; angled; Pin spacing 5 mm; 3-pole; clamping collar; 0.6 x 1.0 mm solder pin; gray

Item No.: 232-233/039-000
THT female header; angled; Pin spacing 5 mm; 3-pole; Locking lever; 0.6 x 1.0 mm solder pin; gray

Item No.: 232-233/047-000
THT female header; angled; Pin spacing 5 mm; 3-pole; Spacer flange; 0.6 x 1.0 mm solder pin; gray



Item No.: 232-133
THT female header; straight; Pin spacing 5 mm; 3-pole; 0.6 x 1.0 mm solder pin; gray

Item No.: 232-133/031-000
THT female header; straight; Pin spacing 5 mm; 3-pole; clamping collar; 0.6 x 1.0 mm solder pin; gray

Item No.: 232-133/039-000
THT female header; straight; Pin spacing 5 mm; 3-pole; Locking lever; 0.6 x 1.0 mm solder pin; gray

Item No.: 232-133/047-000
THT female header; straight; Pin spacing 5 mm; 3-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.: 216-241
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.: 216-201
Ferrule; Sleeve for 0.5 mm² / 20 AWG; insulated; electro-tin plated; white

1.2.3.1 Ferrule

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; in-sulated; 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; in-sulated; 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; in-sulated; 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; in-sulated; 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; in-sulated; 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; in-sulated; 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; in-sulated; electro-tin plated; black

Item No.: 216-244
Ferrule; Sleeve for 1.5 mm² / AWG 16; in-sulated; 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; in-sulated; 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; in-sulated; electro-tin plated; electrolytic copper; gastight crimped; acc. to DIN 46228, Part 4/09.90; 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.: 231-902
Jumper; for conductor entry; 2-way; in-sulated; gray



Item No.: 231-903
Jumper; for conductor entry; 3-way; in-sulated; gray

1.2.6 Marking

1.2.6.1 Marking strip

Item No.: 210-331/500-103

Marking strips; as a DIN A4 sheet; MAR-KED; 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; MAR-KED; 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; MAR-KED; 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; MAR-KED; 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; MAR-KED; 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; MAR-KED; 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.: 232-603

Strain relief housing; for female and male connectors; 2 parts; Pin spacing 5 mm; 3-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.: 280-433

Operating tool; made of insulating material; 3-way; white

Item No.: 231-159

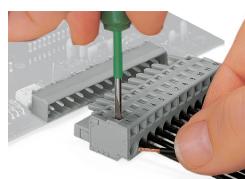
Operating tool; natural

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.

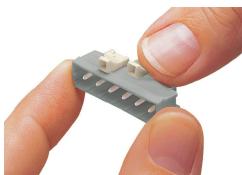


Inserting a conductor into CAGE CLAMP® unit via operating tool (231-291).



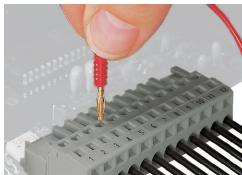
Inserting a conductor via operating tool.

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

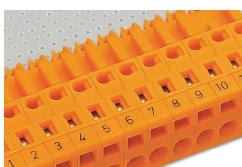


Male connector with strain relief plate



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

Marking



Labeling via direct marking or self-adhesive strips.