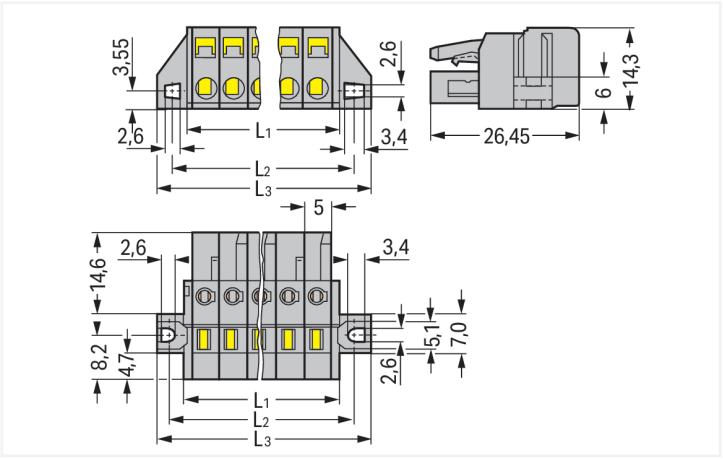
Data Sheet | Item Number: 231-117/031-000

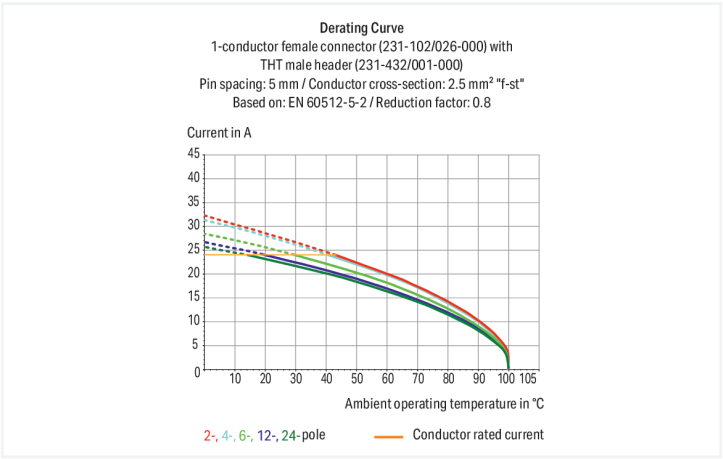
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 17-pole; clamping collar; gray

https://www.wago.com/231-117/031-000

Color: gray



Dimensions in mm
L1 = (pole no. x pin spacing) + 3 mm
L2 = (pole no. x pin spacing) + 8.8 mm
L3 = (pole no. x pin spacing) + 14.8 mm
2- to 3-pole female connectors – one latch only



Federleiste/Buchse Serie 231, grau

Die Federleiste/Buchse hat die Artikelnummer 231-117/031-000 und ermöglicht eine ordentliche Elektroinstallation. Unsere Leiterplatten-Steckverbinder ermöglichen Ihnen die größtmögliche Flexibilität bei unterschiedlichen Montagearten. Bei dieser Federleiste/Buchse ist für den Leiteranschluss eine Abisolierlänge im Bereich von 8 bis 9 mm erforderlich. Dieses Produkt ist mit der CAGE CLAMP®-Technologie ausgerüstet. Der zuverlässige und wartungsfreie CAGE CLAMP® Universalanschluss bietet die Möglichkeit, alle Arten von Leitern mit einer Käfigzugfeder anzuschließen, ohne, dass eine Vorbehandlung der Leiter erforderlich ist. Das Aufcrimpen von Aderendhülsen kann somit entfallen. In Breite x Höhe x Tiefe sind die Abmessungen (99,8 x 14,3 x 26,45) mm. In Abhängigkeit von der Leiterart ist diese Federleiste/Buchse geeignet für Leiterquerschnitte von 0,08 mm² bis 2,5 mm². Die Kontaktoberfläche besteht aus Zinn. Diese Federleiste/Buchse wird durch ein Betätigungswerkzeug betätigt. Das MCS – "Multi Connection System" von WAGO ist ein vielfältiges Steckverbindersystem für Ihre durchgängige Systemverdrahtung. Es ermöglicht Ihnen eine vereinfachte Verdrahtung in der Kabelvorkonfektionierung und auf Geräten durch zwei Betätigungsrichtungen für die CAGE CLAMP®-Varianten.

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:	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 surge voltage	4 kV	4 kV	4 kV
Rated current	16 A	16 A	16 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	99.8 mm / 3.929 inches
Height	14.3 mm / 0.563 inches
Depth	26.45 mm / 1.041 inches

Mechanical data

Variable coding	Yes
Mounting type	Mounting flange Feed-through mounting Panel mounting
Anti-rotation protection	Yes

Plug-in connection

Contact type (pluggable connector)	Female connector/socket
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	Copper alloy
Contact Plating	Tin
Fire load	0.687 MJ
Weight	30.6 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_1 = 5 Hz to f_2 = 150 Hz f_1 = 5 Hz to f_2 = 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)
PU (SPU)	10 pcs
Packaging type	Box
Country of origin	DE
GTIN	4044918342414
Customs tariff number	85366990990

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 8.0	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	LR 18677-25
KEMA/KEUR DEKRA Certification B.V.	EN 61984	71-130478 REV.1
UL Underwriters Laboratories Inc.	UL 1059	UL-US-L45172-6187117-81111991-1
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 Shipping	-	19-HG1869876-PDA
BV Bureau Veritas S.A.	IEC 60998	11915/D0 BV
DNV DNV GL SE	-	TAE000016Z

Downloads

Environmental Product Compliance

Compliance Search

Environmental Product Compliance 231-117/031-000

Documentation

Additional Information

Technical Section	03.04.2019	pdf 2027.26 KB

CAD/CAE-Data

CAD data

2D/3D Models 231-117/031-000

CAE data

EPLAN Data Portal 231-117/031-000

ZUKEN Portal 231-117/031-000

1 Compatible Products

1.1 System counterpart

1.1.1 Male connector/plug

Item No.: 231-617
1-conductor male connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 17-pole; gray

Item No.: 231-447/001-000
THT male header; 1.0 x 1.0 mm solder pin; angled; Pin spacing 5 mm; 17-pole; gray

Item No.: 231-147/001-000
THT male header; 1.0 x 1.0 mm solder pin; straight; Pin spacing 5 mm; 17-pole; gray

1.2 Optional Accessories

1.2.1 Cover

1.2.1.1 Cover

Item No.: 231-668
Lockout caps; for covering unused clamping units; gray

1.2.2 Ferrule

1.2.2.1 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; uninsulated; 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; uninsulated; 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; uninsulated; 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; uninsulated; 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; uninsulated; electro-tin plated

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

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; 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; insulated; 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; insulated; 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; uninsulated; 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; uninsulated; electro-tin plated; silver-colored

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

1.2.3 Installation

1.2.3.1 Mounting accessories

Item No.: 231-295
Screw with nut

Item No.: 231-195
Screw with nut; M2x12; for fixing element

Item No.: 209-147
Self-tapping screw

Item No.: 231-194
Self-tapping screw; B 2.2x13, fixing hole 1.8 mm Ø

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 Test and measurement

1.2.7.1 Testing accessories

Item No.: 210-136
Test plug; 2 mm Ø; with 500 mm cable; red

Item No.: 231-661
Test plugs for female connectors; for 5 mm and 5.08 mm pin spacing; 2,50 mm²; light 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.: 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

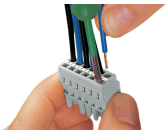
Item No.: 280-437
Operating tool; made of insulating material; 7-way; white

Item No.: 280-438
Operating tool; made of insulating material; 8-way; white

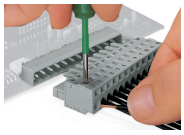
Item No.: 231-159
Operating tool; natural

Installation Notes

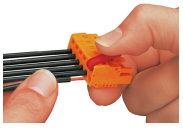
Conductor termination



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.



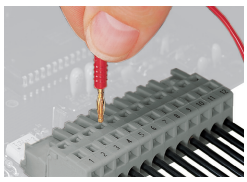
Inserting a conductor into CAGE CLAMP® unit via operating tool (231-291).

Inserting a conductor via operating tool.

Coding

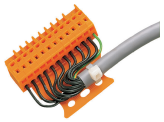
Coding a female connector by removing coding finger(s).

Testing

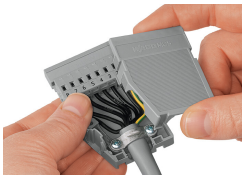


Testing – female connector with CAGE CLAMP®
Integrated test ports for testing perpendicular to conductor entry via 2 or 2.3 mm Ø test plug

Installation

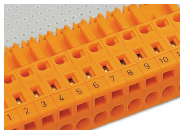


Male connector with strain relief plate



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

Marking



Labeling via direct marking or self-adhesive strips.