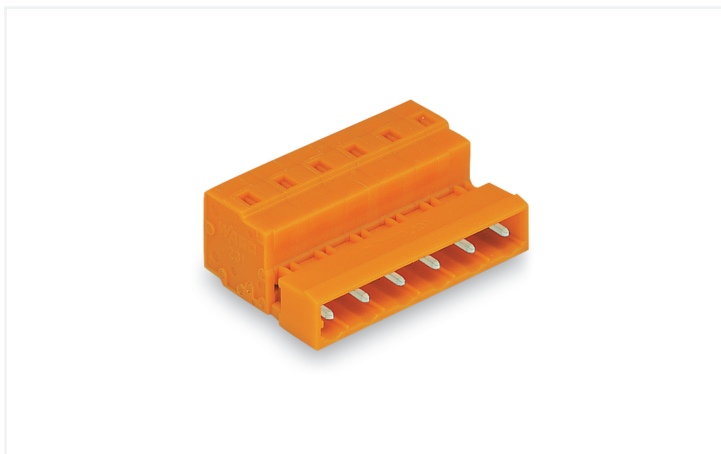


Data Sheet | Item Number: 731-639

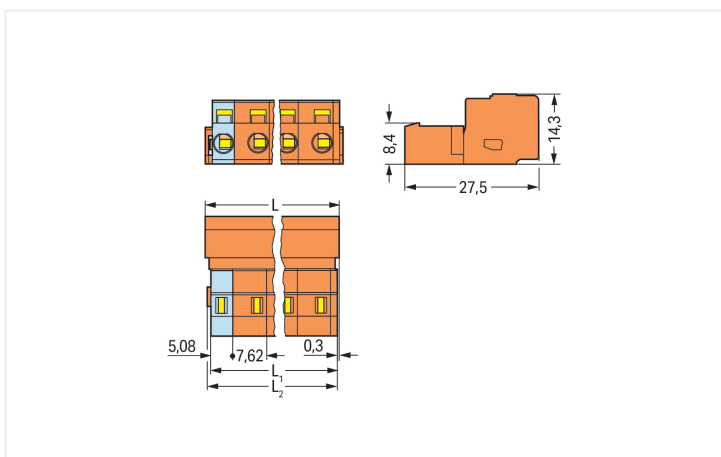
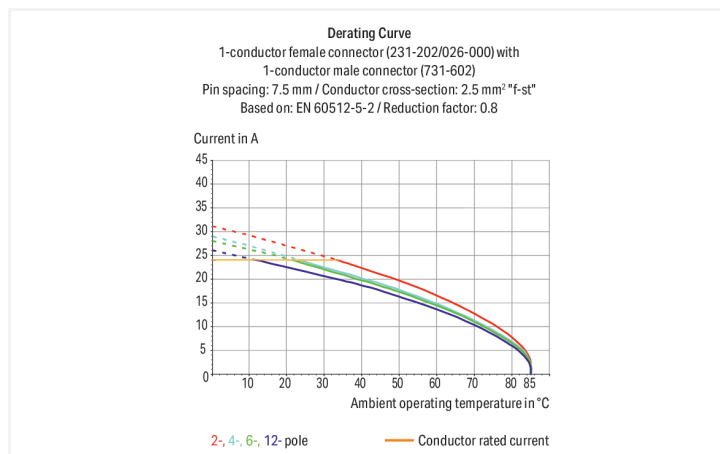
1-conductor male connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 7.62 mm; 9-pole; 2,50 mm²; orange

<https://www.wago.com/731-639>



Color: ■ orange

Similar to illustration



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, 731 Series, operating tool

This male connector (item number 731-639) provides fault-free electrical installations. 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 tried-and-tested universal connection known as CAGE CLAMP® is the industry standard for connection technology and electrical interconnections. Dimensions: (69.24 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.

Tin is used for coating the contact surfaces.

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			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	500 V	630 V	1000 V	Rated current	15 A	-	10 A
Rated impulse withstand voltage	6 kV	6 kV	6 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	9	Connection 1	
Total number of potentials	9	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 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	9
		Conductor entry direction to mating direction	0°

Physical data

Pin spacing	7.62 mm / 0.3 inches
Width	69.24 mm / 2.726 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	orange
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	0.337 MJ
Weight	16.8 g

Environmental requirements

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

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)




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	4044918268257
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
KEMA/KEUR DEKRA Certification B.V.	EN 61984	71-130478 REV.1
UR Underwriters Laboratories Inc.	UL 1977	E45171
UR Underwriters Laboratories Inc.	UL 1059	E45172

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 731-639



Documentation

Additional Information

Technical Section

03.04.2019

pdf

2027.26 KB



CAD/CAE-Data

CAD data

2D/3D Models 731-639



CAE data

EPLAN Data Portal
731-639



ZUKEN Portal 731-639



1 Compatible Products

1.1 System counterpart

1.1.1 Female connector/socket



[Item No.: 732-129/026-000](#)

1-conductor female connector, angled;
CAGE CLAMP®; 2.5 mm²; Pin spacing 7.62
mm; 9-pole; 2,50 mm²; orange



[Item No.: 231-709/027-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 7.62 mm;
9-pole; clamping collar; orange



[Item No.: 231-709/031-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 7.62 mm;
9-pole; clamping collar; orange



[Item No.: 231-709/037-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 7.62 mm;
9-pole; Lateral locking levers; orange



[Item No.: 231-709/026-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 7.62 mm;
9-pole; orange



[Item No.: 231-709/008-000](#)

1-conductor female connector; CAGE
CLAMP®; 2.5 mm²; Pin spacing 7.62 mm;
9-pole; Snap-in mounting feet; orange



[Item No.: 2231-709/026-000](#)

1-conductor female connector; push-
button; Push-in CAGE CLAMP®; 2.5 mm²;
Pin spacing 7.62 mm; 9-pole; 2,50 mm²;
orange



[Item No.: 2231-709/031-000](#)

1-conductor female connector; push-but-
ton; Push-in CAGE CLAMP®; 2.5 mm²; Pin
spacing 7.62 mm; 9-pole; clamping collar;
2,50 mm²; orange

1.1.1 Female connector/socket



Item No.: 2231-709/037-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 7.62 mm; 9-pole; Lateral locking levers; 2,50 mm²; orange



Item No.: 2231-709/008-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 7.62 mm; 9-pole; Snap-in mounting feet; 2,50 mm²; orange



Item No.: 231-2709/037-000
2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 7.62 mm; 9-pole; Lateral locking levers; orange



Item No.: 231-2709/026-000
2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 7.62 mm; 9-pole; with integrated end plate; orange



Item No.: 232-869
THT female header; angled; Pin spacing 7.62 mm; 9-pole; 0.6 x 1.0 mm solder pin; orange



Item No.: 232-869/045-000
THT female header; angled; Pin spacing 7.62 mm; 9-pole; 0.6 x 1.0 mm solder pin; orange



Item No.: 232-869/031-000
THT female header; angled; Pin spacing 7.62 mm; 9-pole; clamping collar; 0.6 x 1.0 mm solder pin; orange



Item No.: 232-869/039-000
THT female header; angled; Pin spacing 7.62 mm; 9-pole; Locking lever; 0.6 x 1.0 mm solder pin; orange



Item No.: 232-869/047-000
THT female header; angled; Pin spacing 7.62 mm; 9-pole; Spacer flange; 0.6 x 1.0 mm solder pin; orange



Item No.: 232-769
THT female header; straight; Pin spacing 7.62 mm; 9-pole; 0.6 x 1.0 mm solder pin; orange



Item No.: 232-769/045-000
THT female header; straight; Pin spacing 7.62 mm; 9-pole; 0.6 x 1.0 mm solder pin; orange



Item No.: 232-769/031-000
THT female header; straight; Pin spacing 7.62 mm; 9-pole; clamping collar; 0.6 x 1.0 mm solder pin; orange



Item No.: 232-769/039-000
THT female header; straight; Pin spacing 7.62 mm; 9-pole; Locking lever; 0.6 x 1.0 mm solder pin; orange



Item No.: 232-769/047-000
THT female header; straight; Pin spacing 7.62 mm; 9-pole; Spacer flange; 0.6 x 1.0 mm solder pin; orange

1.2 Optional Accessories

1.2.1 Coding

1.2.1.1 Coding



Item No.: 231-130
Coding key; snap-on type; light gray

1.2.2 Cover

1.2.2.1 Cover



Item No.: 231-669
Lockout caps; for covering unused clamping units; orange

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

1.2.3.1 Ferrule

 <p>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</p>	 <p>Item No.: 216-101 Ferrule; Sleeve for 0.5 mm² / AWG 22; un-insulated; electro-tin plated; silver-colored</p>	 <p>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</p>	 <p>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</p>
 <p>Item No.: 216-202 Ferrule; Sleeve for 0.75 mm² / 18 AWG; insulated; electro-tin plated; gray</p>	 <p>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</p>	 <p>Item No.: 216-102 Ferrule; Sleeve for 0.75 mm² / AWG 20; un-insulated; electro-tin plated; silver-colored</p>	 <p>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</p>
 <p>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</p>	 <p>Item No.: 216-203 Ferrule; Sleeve for 1 mm² / AWG 18; insulated; electro-tin plated; red</p>	 <p>Item No.: 216-103 Ferrule; Sleeve for 1 mm² / AWG 18; un-insulated; electro-tin plated</p>	 <p>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</p>
 <p>Item No.: 216-204 Ferrule; Sleeve for 1.5 mm² / AWG 16; insulated; electro-tin plated; black</p>	 <p>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</p>	 <p>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</p>	 <p>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</p>
 <p>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</p>	 <p>Item No.: 216-104 Ferrule; Sleeve for 1.5 mm² / AWG 16; un-insulated; electro-tin plated; silver-colored</p>	 <p>Item No.: 216-106 Ferrule; Sleeve for 2.5 mm² / AWG 14; un-insulated; electro-tin plated; silver-colored</p>	



1.2.4 Insulation stop

1.2.4.1 Insulation stop

 <p>Item No.: 231-673 Insulation stop; 0.08-0.2 mm² / 0.2 mm² "s"; white</p>	 <p>Item No.: 231-674 Insulation stop; 0.25 - 0.5 mm²; light gray</p>	 <p>Item No.: 231-675 Insulation stop; 0.75 - 1 mm²; dark gray</p>
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1.2.5 Marking

1.2.5.1 Marking strip

 <p>Item No.: 210-331/762-202 Marking strips; as a DIN A4 sheet; MARKED; 1-16 (100x); Height of marker strip: 2.3 mm/0.091 in; Strip length 182 mm; Horizontal marking; Self-adhesive; white</p>	 <p>Item No.: 210-332/762-020 Marking strips; as a DIN A4 sheet; MARKED; 1-20 (80x); Height of marker strip: 3 mm; Strip length 182 mm; Horizontal marking; Self-adhesive; white</p>
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1.2.6 Tool

1.2.6.1 Operating tool



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.: 231-291

Operating tool; made of insulating material; 1-way; loose; red

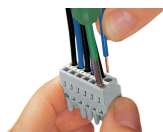


Item No.: 231-131

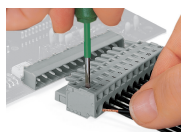
Operating tool; made of insulating material; 1-way; loose; white

Installation Notes

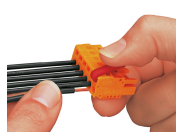
Conductor termination



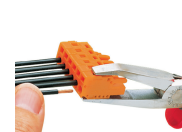
Inserting a conductor via 3.5 mm screwdriver – CAGE CLAMP® actuation parallel to conductor entry.



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

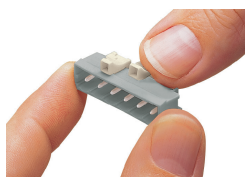


Inserting a conductor into CAGE CLAMP® unit via operating tool (231-291).



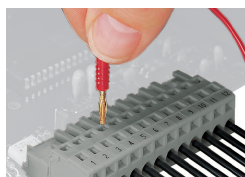
Inserting a conductor via operating tool.

Coding



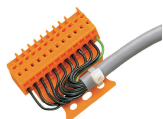
Coding a male header – fitting coding key(s).

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.