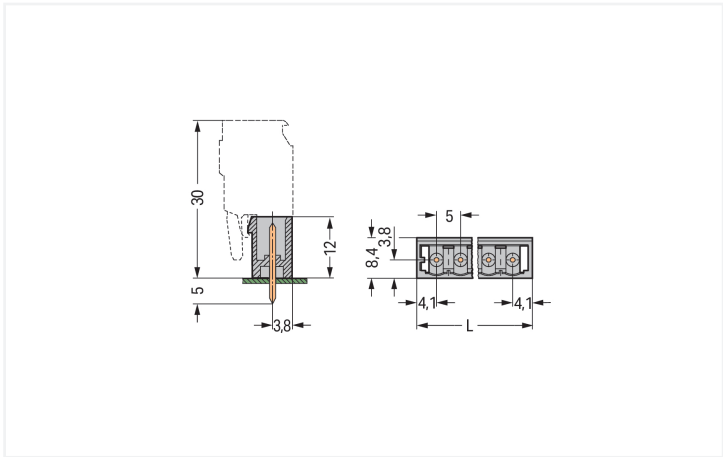
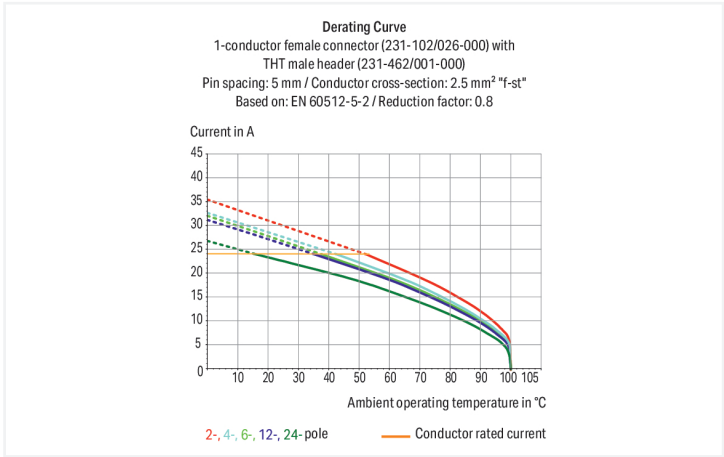




Color: ■ gray



Dimensions in mm
L = (pole no. – 1) x pin spacing + 8.2 mm

Male connector, 231 Series, gray

This male connector (item number 231-146/001-000) simplifies electrical installations. Dimensions: (83.2 x 17 x 8.4) mm (width x height x depth).

The contact surface is coated with tin. The pcb connector is designed for THT soldering.

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 3.8 mm pin projection for male headers with straight solder pins 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
Pollution degree	3	2	2	Rated voltage	300 V	-
Nominal voltage	320 V	320 V	630 V	Rated current	10 A	-
Rated impulse withstand voltage	4 kV	4 kV	4 kV			
Rated current	12 A	12 A	12 A			

Ratings per UL 1977		Approvals per		CSA	
Rated current UL 1977	10 A	Use group	B	C	D
		Rated voltage	300 V	-	300 V
		Rated current	10 A	-	10 A

Connection Data			
Total number of potentials	16	Connection 1	
Number of connection types	1	Pole number	16
Number of levels	1		

Physical data	
Pin spacing	5 mm / 0.197 inches
Width	83.2 mm / 3.276 inches
Height	17 mm / 0.669 inches
Height from the surface	12 mm / 0.472 inches
Depth	8.4 mm / 0.331 inches
Solder pin length	5 mm
Solder pin dimensions	1 x 1 mm
Drilled hole diameter	1.4 (+0.1) mm

Mechanical data	
Variable coding	Yes
Anti-rotation protection	Yes

Plug-in connection	
Contact type (pluggable connector)	Male connector/plug
Connector (connection type)	for PCB
Mismating protection	No
Mating direction to the PCB	90 °

PCB contact	
PCB contact	THT
Solder pin arrangement	over the entire male connector (in-line)
Number of solder pins per potential	1



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
Contact material	Electrolytic copper (E _{Cu})
Contact Plating	Tin
Fire load	0.082 MJ
Weight	5.1 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)
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)	50 pcs
Packaging type	Box
Country of origin	PL
GTIN	4044918863872
Customs tariff number	85366930000

Product Classification	
UNSPSC	39121409
eCl@ss 10.0	27-44-04-02
eCl@ss 9.0	27-44-04-02
ETIM 9.0	EC002637
ETIM 10.0	EC002637
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	LR 18677-25			
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
BV Bureau Veritas S.A.	IEC 60998	11915/E0 BV
DNV DNV GL SE	-	TAE000016Z
PRS Polski Rejestr Statków	-	TE/1095/880590/23



Downloads

Environmental Product Compliance

Compliance Search

Environmental Product Compliance231-146/001-000

Documentation

Additional Information

Technical Section03.04.2019pdf2027.26 KB

CAD/CAE-Data

CAD data

2D/3D Models231-146/001-000

CAE data

EPLAN Data Portal231-146/001-000

ZUKEN Portal231-146/001-000

PCB Design

Symbol and Footprint via SamacSys231-146/001-000

Symbol and Footprint via Ultra Librarian231-146/001-000

1 Compatible Products

1.1 System counterpart

1.1.1 Female connector/socket



Item No.: 232-116/026-000
1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; 2,50 mm²; gray



Item No.: 232-216/026-000
1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; 2,50 mm²; gray



Item No.: 231-116/027-000
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; clamping collar; gray



Item No.: 231-116/031-000
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; clamping collar; gray



Item No.: 231-116/026-000
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; gray



Item No.: 231-116/037-000
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; Lateral locking levers; gray



Item No.: 231-116/125-000
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; Snap-in flange; gray



Item No.: 231-116/102-000
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; with integrated end plate; gray



Item No.: 231-120/125-000
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole; Snap-in flange; 2,50 mm²; gray



Item No.: 2231-1116/327-000
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; 2,50 mm²; gray



Item No.: 2231-1116/329-000
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; Centered locking levers; gray

Item No.: 2231-1116/329-000/336-000
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; Centered locking levers; Strain relief plate; gray



1.1.1 Female connector/socket



Item No.: 2231-1116/327-047
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; direct marking; 2,50 mm²; gray



Item No.: 2231-1116/327-9037
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; direct marking; 2,50 mm²; gray



Item No.: 2231-1116/038-000
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; Lateral locking levers; 2,50 mm²; gray



Item No.: 2231-1116/038-000/336-000
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; Lateral locking levers; Strain relief plate; gray



Item No.: 2231-1116/327-000/336-000
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; Strain relief plate; gray



Item No.: 2231-1116/026-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; 2,50 mm²; gray



Item No.: 2231-1116/031-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; clamping collar; 2,50 mm²; gray



Item No.: 2231-1116/037-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; Lateral locking levers; 2,50 mm²; gray



Item No.: 2231-1116/102-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; with integrated end plate; 2,50 mm²; gray



Item No.: 231-2116/037-000
2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; Lateral locking levers; gray



Item No.: 231-2116/026-000
2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 16-pole; with integrated end plate; 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

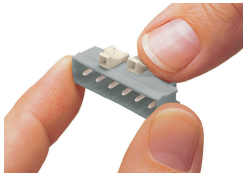
1.2.1.2 Intermediate plate



Item No.: 231-500
Spacer; for formation of groups; light gray

Installation Notes

Coding



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