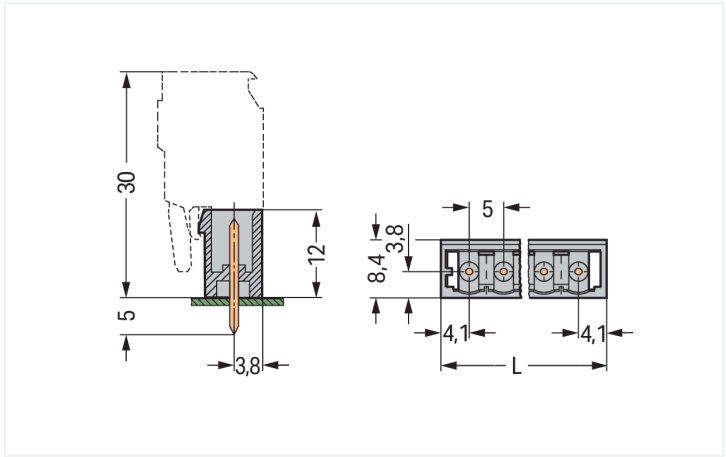
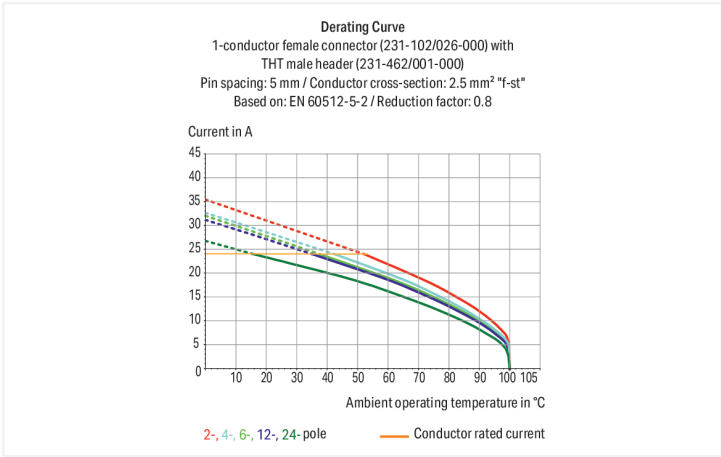




Color: ■ gray



Dimensions in mm
 $L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$



Stiftleiste Serie 231, grau

Die Stiftleiste hat die Artikelnummer 231-145/001-000 und schafft eine fehlerfreie Elektroinstallation. Setzen Sie beim Design-In Ihres Gerätes auf bewährte Sicherheit: Mit Leiterplatten-Steckverbindern erhalten Sie verschiedene Verwendungsmöglichkeiten. Die Maße sind in Breite x Höhe x Tiefe (78,2 x 17 x 8,4) mm. Die Oberfläche der Kontakte ist aus Zinn. Das MCS – "Multi Connection System" von WAGO umfasst insgesamt 7 Familien in den Rastermaßen 2,5 mm bis 10,16 mm und bietet mit dem Leiterquerschnittsbereich von 0,08 bis 25 mm² ein großes Portfolio an Einsatzmöglichkeiten. Der Leiterplatten-Steckverbinder wird mittels THT auf die Platine gelötet.

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		
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		10 A	-	10 A
Approvals per		UL 1977		
Rated voltage		600 V		
Rated current		10 A		
Approvals per		CSA		
Use group		B	C	D
Rated voltage		300 V	-	300 V
Rated current		10 A	-	10 A
Connection data				
Total number of potentials	15	Connection 1		
Number of connection types	1	Pole number	15	
Number of levels	1			
Physical data				
Pin spacing	5 mm / 0.197 inches			
Width	78.2 mm / 3.079 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 with tolerance	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		0.18 MJ
Weight		4.8 g

Environmental requirements																																								
Limit temperature range	-60 ... +100 °C	<table><tr><th colspan="2">Environmental Testing (Environmental Conditions)</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 – Shock and vibration tests</td><td>DIN EN 61373 (VDE 0115-0106):2011-04</td></tr><tr><td>Spectrum/Installation location</td><td>Service life test, Category 1, Class A/B</td></tr><tr><td>Function test with noise-like vibration</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 f₁ = 5 Hz to f₂ = 150 Hz</td></tr><tr><td>Acceleration</td><td>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)</td></tr><tr><td>Test duration per axis</td><td>10 min. 5 h</td></tr><tr><td>Test directions</td><td>X, Y and Z axes X, Y and Z axes X, Y and Z axes</td></tr><tr><td>Monitoring for contact faults/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 vibration</td><td>Test passed according to Section 9 of the standard</td></tr><tr><td>Extended test scope: Monitoring for contact faults/interruptions</td><td>Passed Passed</td></tr><tr><td>Extended test scope: Voltage drop measurement before and after each axis</td><td>Passed Passed</td></tr><tr><td>Shock test</td><td>Test passed according to Section 10 of the standard</td></tr><tr><td>Shock form</td><td>Half sine</td></tr><tr><td>Shock duration</td><td>30 ms</td></tr><tr><td>Number of shocks per axis</td><td>3 pos. und 3 neg.</td></tr><tr><td>Vibration and shock stress for rolling stock equipment</td><td>Passed</td></tr></table>	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
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Number of shocks per axis	3 pos. und 3 neg.																																							
Vibration and shock stress for rolling stock equipment	Passed																																							
Processing temperature	-35 ... +60 °C																																							



Commercial data		
Product Group	3 (Multi Conn. System)	
PU (SPU)	50 pcs	
Packaging type	Box	
Country of origin	PL	
GTIN	4044918863803	
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 8.0	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	UL-US- L45172-6187117-81111991-1			
UR Underwriters Laboratories Inc.	UL 1977	E45171			

Approvals for marine applications

		
Approval	Standard	Certificate Name
ABS American Bureau of Ship- ping	-	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 Compliance231-145/001-000

Documentation

Additional Information

Technical Section03.04.2019pdf2027.26 KB

CAD/CAE-Data

CAD data

2D/3D Models231-145/001-000

CAE data

EPLAN Data Portal231-145/001-000

ZUKEN Portal231-145/001-000

PCB Design

Symbol and Footprint via SamacSys231-145/001-000

Symbol and Footprint via Ultra Librarian231-145/001-000

1 Compatible Products

1.1 System counterpart

1.1.1 Female connector/socket



Item No.: 232-115/026-0001-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; 2,50 mm²; gray



Item No.: 232-215/026-0001-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; 2,50 mm²; gray



Item No.: 231-115/027-0001-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; clamping collar; gray



Item No.: 231-115/031-0001-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; clamping collar; gray



Item No.: 231-115/026-000/054-0001-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; direct marking; gray



Item No.: 231-115/026-0001-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; gray



Item No.: 231-115/037-0001-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; Lateral locking levers; gray



Item No.: 231-115/125-0001-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; Snap-in flange; gray



Item No.: 231-115/102-0001-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; with integrated end plate; gray



Item No.: 2231-115/026-0001-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; 2,50 mm²; gray



Item No.: 2231-115/031-0001-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; clamping collar; 2,50 mm²; gray



Item No.: 2231-115/037-0001-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; Lateral locking levers; 2,50 mm²; gray

1.1.1 Female connector/socket



Item No.: 2231-115/102-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; with integrated end plate; 2,50 mm²; gray



Item No.: 231-2115/037-000
2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-pole; Lateral locking levers; gray



Item No.: 231-2115/026-000
2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 15-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

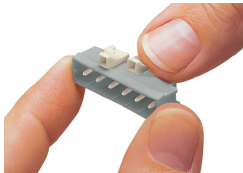
1.2.1.2 Intermediate plate



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

Installation Notes

Coding



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