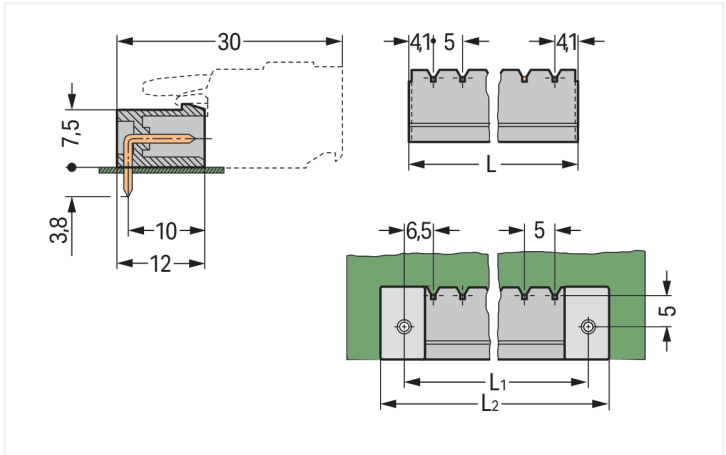
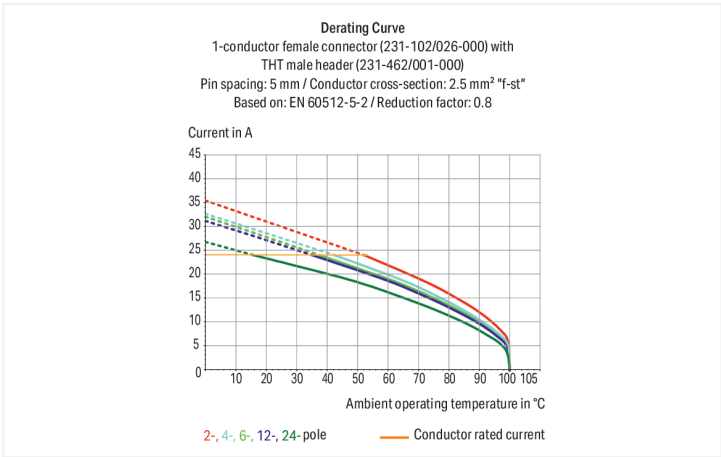




Color: ■ gray



Dimensions in mm
 $L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$
 $L1 = L + 5 \text{ mm}$
 $L2 = L1 + 7.4 \text{ mm}$



Stiftleiste Serie 231 mit Rastermaß 5 mm

Bei dieser Stiftleiste (Artikelnummer 231-440/001-000) ist eine reibungslose Elektroinstallation der Fokus. Setzen Sie beim Design-In Ihres Gerätes auf erprobte Sicherheit: Mit Leiterplatten-Steckverbindern haben Sie diverse Verwendungsmöglichkeiten. Die Abmessungen sind in Breite x Höhe x Tiefe (53,2 x 12,2 x 12) mm. Für die Kontaktoberfläche wurde Zinn verwendet. 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. Die Verlötlung des Leiterplatten-Steckverbinders erfolgt mittels THT.

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	10	Connection 1		
Number of connection types	1	Pole number	10	
Number of levels	1			
Physical data				
Pin spacing	5 mm / 0.197 inches			
Width	53.2 mm / 2.094 inches			
Height	12.2 mm / 0.48 inches			
Height from the surface	8.4 mm / 0.331 inches			
Depth	12 mm / 0.472 inches			
Solder pin length	3.8 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	0°			
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	0.105 MJ
Weight	3.2 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)	100 pcs
Packaging type	Box
Country of origin	PL
GTIN	4044918866323
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	1466354			
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 Compliance	231-440/001-000		
Documentation			
Additional Information			
Technical Section	03.04.2019	pdf 2027.26 KB	
CAD/CAE-Data			
CAD data		CAE data	
2D/3D Models	231-440/001-000	EPLAN Data Portal	231-440/001-000
		ZUKEN Portal	231-440/001-000
PCB Design			
Symbol and Footprint	via SamacSys		
	231-440/001-000		
Symbol and Footprint	via Ultra Librarian		
	231-440/001-000		
1 Compatible Products			
1.1 System counterpart			
1.1.1 Female connector/socket			
Item No.: 232-110/026-000	Item No.: 232-210/026-000	Item No.: 231-110/027-000	Item No.: 231-110/031-000
1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; 2,50 mm²; gray	1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; 2,50 mm²; gray	1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; clamping collar; gray	1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; clamping collar; gray
Item No.: 231-110/026-000	Item No.: 231-110/037-000	Item No.: 231-110/125-000	Item No.: 231-110/102-000
1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; gray	1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; Lateral locking levers; gray	1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; Snap-in flange; gray	1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; with integrated end plate; gray
Item No.: 2231-1110/327-000	Item No.: 2231-1110/327-047	Item No.: 2231-1110/327-9037	Item No.: 2231-1110/038-000
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; 2,50 mm²; gray	1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; direct marking; 2,50 mm²; gray	1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; direct marking; 2,50 mm²; gray	1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; Lateral locking levers; 2,50 mm²; gray



1.1.1 Female connector/socket



Item No.: 2231-1110/327-000/335-000
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; Strain relief plate; gray



Item No.: 2231-1112/327-9037
1-conductor female connector; lever; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 12-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.: 2231-1110/026-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; 2,50 mm²; gray



Item No.: 2231-1110/031-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; clamping collar; 2,50 mm²; gray



Item No.: 2231-1110/037-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; Lateral locking levers; 2,50 mm²; gray



Item No.: 2231-1110/102-000
1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; with integrated end plate; 2,50 mm²; gray



Item No.: 231-2110/037-000
2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-pole; Lateral locking levers; gray



Item No.: 231-2110/026-000
2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 10-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

1.2.2 Installation

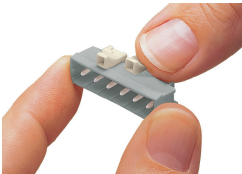
1.2.2.1 Mounting accessories



Item No.: 231-193
Locking device; for male connectors; 1 part; gray

Installation Notes

Coding



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