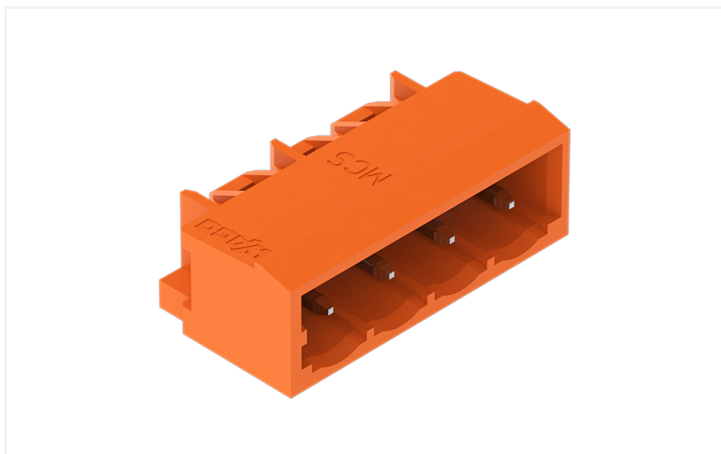


# Data Sheet | Item Number: 231-539/001-000

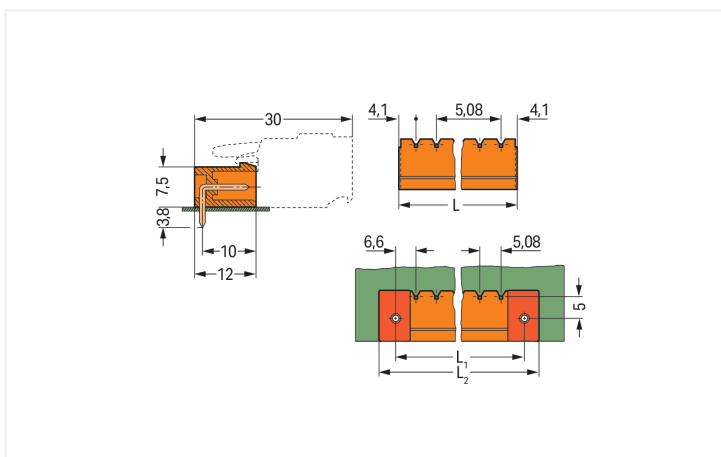
THT male header; 1.0 x 1.0 mm solder pin; angled; Pin spacing 5.08 mm; 9-pole; orange

<https://www.wago.com/231-539/001-000>



Color: ■ orange

Similar to illustration



Dimensions in mm

$L = (\text{pole no.} - 1) \times \text{pin spacing} + 8.2 \text{ mm}$   
 $L_1 = L + 5 \text{ mm}$   
 $L_2 = L_1 + 7.4 \text{ mm}$

Male connector, 231 Series, solder pin dimensions 1 x 1 mm

Our male connector (item number 231-539/001-000) is designed for seamless electrical installations. The dimensions are (48.84 x 12.2 x 12) 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		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Nominal voltage	320 V	320 V	630 V
Rated impulse withstand 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

## Ratings per UL 1977

Rated current UL 1977	10 A
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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	9
Number of connection types	1
Number of levels	1

Connection 1	
Pole number	9

## Physical data

Pin spacing	5.08 mm / 0.2 inches
Width	48.84 mm / 1.923 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	1.4 <sup>(+0.1)</sup> 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)	<a href="#">Information on material specifications can be found here</a>
Color	orange
Material group	I
Insulation material (main housing)	Polyamide (PA66)
Flammability class per UL94	V0
Contact material	Electrolytic copper (E <sub>Cu</sub> )
Contact Plating	Tin
Fire load	0.046 MJ
Weight	2.9 g

### Environmental requirements

Limit temperature range	-60 ... +100 °C	<b>Environmental Testing</b>
Processing temperature	-35 ... +60 °C	
		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 <sub>1</sub> = 5 Hz to f <sub>2</sub> = 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 <sub>1</sub> = 5 Hz to f <sub>2</sub> = 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

**Environmental Testing**

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)	100 pcs
Packaging type	Box
Country of origin	PL
GTIN	4044918867146
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
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**Approvals / Certificates**

**General approvals**

**Declarations of conformity and manufacturer's declarations**



Approval	Standard	Certificate Name
CB DEKRA Certification B.V.	IEC 61984	NL-113351
CSA DEKRA Certification B.V.	C22.2	1466354
KEMA/KEUR DEKRA Certification B.V.	EN 61984	71-130478 REV.1
UL UL International Germany GmbH	UL 1977	E45171
UR Underwriters Laboratories Inc.	UL 1059	E45172

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
BV Bureau Veritas S.A.	IEC 60998	11915/E0 BV

Downloads

Environmental Product Compliance

Compliance Search	
Environmental Product Compliance 231-539/001-000	<a href="#">↓</a>

Documentation

Additional Information			
Technical Section	03.04.2019	pdf 2027.26 KB	<a href="#">↓</a>

CAD/CAE-Data

CAD data	
2D/3D Models 231-539/001-000	<a href="#">↓</a>

CAE data	
EPLAN Data Portal 231-539/001-000	<a href="#">↓</a>
ZUKEN Portal 231-539/001-000	<a href="#">↓</a>

PCB Design

Symbol and Footprint via SamacSys 231-539/001-000	<a href="#">↓</a>
Symbol and Footprint via Ultra Librarian 231-539/001-000	<a href="#">↓</a>

**1 Compatible Products**

**1.1 System counterpart**

**1.1.1 Female connector/socket**



**Item No.: 232-309/026-000**  
 1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; 2,50 mm²; orange



**Item No.: 232-409/026-000**  
 1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; 2,50 mm²; orange



**Item No.: 231-309/027-000**  
 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; clamping collar; orange



**Item No.: 231-309/031-000**  
 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; clamping collar; orange



**Item No.: 231-309/037-000**  
 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; Lateral locking levers; orange



**Item No.: 231-309/026-000**  
 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; orange



**Item No.: 231-309/102-000**  
 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; with integrated end plate; orange



**Item No.: 2231-309/026-000**  
 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; 2,50 mm²; orange



**Item No.: 2231-309/031-000**  
 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; clamping collar; 2,50 mm²; orange



**Item No.: 2231-309/037-000**  
 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; Lateral locking levers; 2,50 mm²; orange



**Item No.: 2231-309/102-000**  
 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; with integrated end plate; 2,50 mm²; orange



**Item No.: 231-2309/037-000**  
 2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; Lateral locking levers; orange



**Item No.: 231-2309/026-000**  
 2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5.08 mm; 9-pole; with integrated end plate; orange

**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

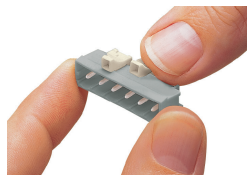


**Item No.: 231-393**

Locking device; for male connectors; 1 part; orange

## Installation Notes

### Coding



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