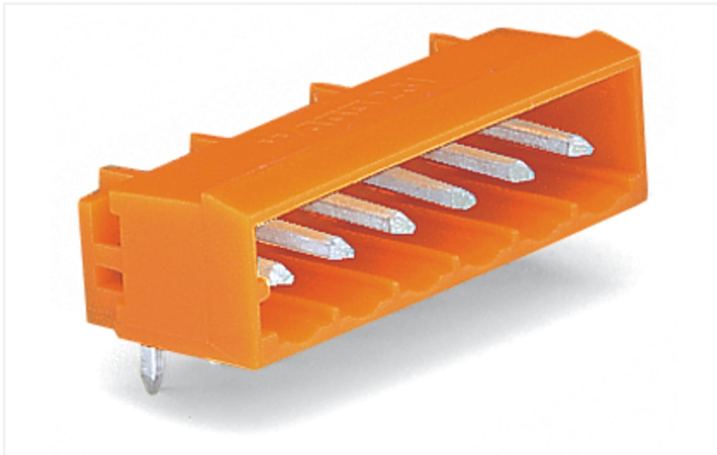


# Data Sheet | Item Number: 231-539/001-000

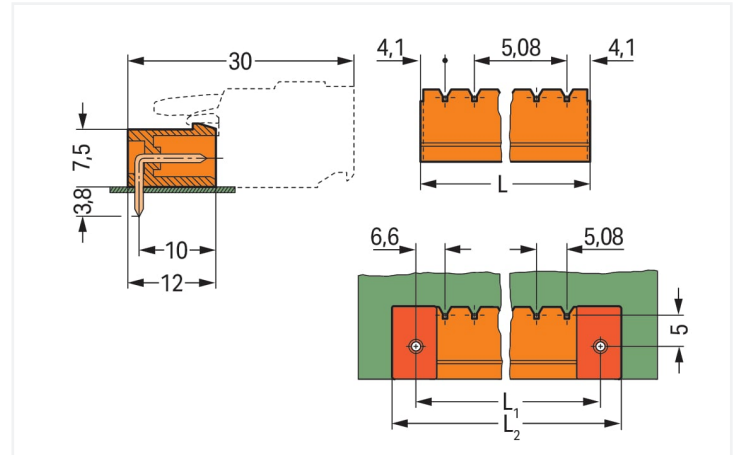
THT male header; 1.0 x 1.0 mm solder pin; angled; Pin spacing 5.08 mm; 9-pole; orange

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



Color: ■ orange

Similar to illustration

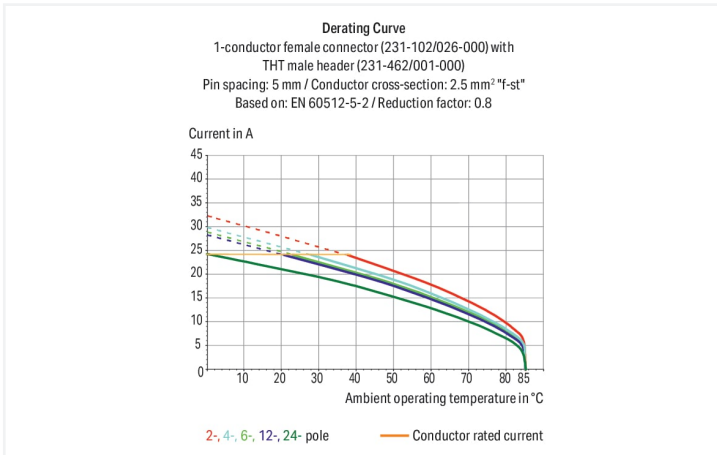


Dimensions in mm

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

$L1 = L + 5 \text{ mm}$

$L2 = L1 + 7.4 \text{ mm}$



- Horizontal or vertical PCB mounting via straight or angled solder pins
- Pin cross-section: 1 x 1 mm
- With coding fingers

## 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	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 with tolerance	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	0.052 MJ
Weight	2.9 g

## Environmental requirements

Limit temperature range	-60 ... +100 °C	<b>Environmental Testing (Environmental Conditions)</b>	
Processing temperature	-35 ... +60 °C	Test specification	DIN EN 50155 (VDE 0115-200):2022-06
		Railway applications – Rolling stock – Electronic equipment	
		Test procedure	DIN EN 61373 (VDE 0115-0106):2011-04
		Railway applications – Rolling stock equipment – Shock and vibration tests	
		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 <sub>1</sub> = 5 Hz to f <sub>2</sub> = 150 Hz f <sub>1</sub> = 5 Hz to f <sub>2</sub> = 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)
eCl@ss 10.0	27-44-04-02
eCl@ss 9.0	27-44-04-02
ETIM 9.0	EC002637
ETIM 8.0	EC002637
PU (SPU)	100 pcs
Packaging type	Box
Country of origin	PL
GTIN	4044918867146
Customs tariff number	85366930000

### Environmental Product Compliance

RoHS Compliance Status	Compliant, No Exemption
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### Approvals / Certificates

#### General approvals



Approval	Standard	Certificate Name
CB DEKRA Certification B.V.	IEC 61984	NL-39756/A1
CSA DEKRA Certification B.V.	C22.2	1466354
KEMA/KEUR DEKRA Certification B.V.	EN 61984	71-121453
UL UL International Germany GmbH	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 Shipping	-	19-HG1869876-PDA
BV Bureau Veritas S.A.	IEC 60998	11915/D0 BV

Downloads

Environmental Product Compliance

Compliance Search

Environmental Product Compliance  
231-539/001-000



Documentation

Additional Information

Technical Section

03.04.2019

pdf

2027.26 KB



CAD/CAE-Data

CAD data

2D/3D Models  
231-539/001-000



CAE data

EPLAN Data Portal  
231-539/001-000



ZUKEN Portal  
231-539/001-000



PCB Design

Symbol and Footprint  
via SamacSys  
231-539/001-000



Symbol and Footprint  
via Ultra Librarian  
231-539/001-000



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 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; 2,50 mm<sup>2</sup>; orange

[Item No.: 232-409/026-000](#)

1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; 2,50 mm<sup>2</sup>; orange

[Item No.: 231-309/026-000](#)

1-conductor female connector; CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; 2,50 mm<sup>2</sup>; orange

[Item No.: 231-309/027-000](#)

1-conductor female connector; CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; clamping collar; 2,50 mm<sup>2</sup>; orange



[Item No.: 231-309/031-000](#)

1-conductor female connector; CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; clamping collar; 2,50 mm<sup>2</sup>; orange

[Item No.: 231-309/037-000](#)

1-conductor female connector; CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; Lateral locking levers; 2,50 mm<sup>2</sup>; orange

[Item No.: 231-309/102-000](#)

1-conductor female connector; CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; with integrated end plate; 2,50 mm<sup>2</sup>; orange

[Item No.: 2231-309/026-000](#)

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; 2,50 mm<sup>2</sup>; orange



[Item No.: 2231-309/031-000](#)

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; clamping collar; 2,50 mm<sup>2</sup>; orange

[Item No.: 2231-309/037-000](#)

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; Lateral locking levers; 2,50 mm<sup>2</sup>; orange

[Item No.: 2231-309/102-000](#)

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; with integrated end plate; 2,50 mm<sup>2</sup>; orange

[Item No.: 231-2309/037-000](#)

2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; Lateral locking levers; 2,50 mm<sup>2</sup>; orange

### 1.1.1 Female connector/socket



**Item No.: 231-2309/026-000**

2-conductor female connector; Push-in CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5.08 mm; 9-pole; with integrated end plate; 2,50 mm<sup>2</sup>; 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

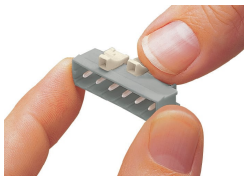


**Item No.: 231-393**

Locking device; for male connectors; 1 part; orange

### Installation Notes

#### Coding



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