

**Data sheet | Item number: 231-449/001-000**

Male header; 19-pole; THT; 1.0 x 1.0 mm solder pin; angled; pin spacing 5 mm; gray



[www.wago.com/231-449\\_001-000](http://www.wago.com/231-449_001-000)



**i** Picture differs from the item.

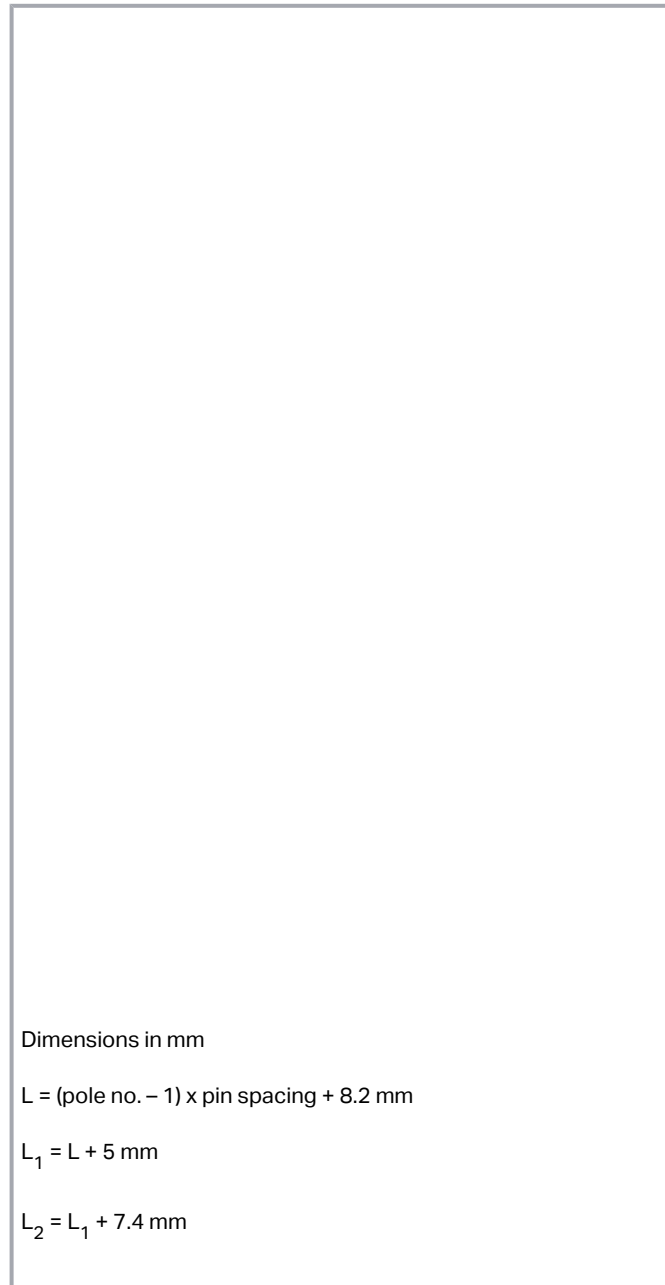
Color: —



Subject to changes. Please also observe the further product documentation!

WAGO Corporation  
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Dimensions in mm

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

$$L_1 = L + 5 \text{ mm}$$

$$L_2 = L_1 + 7.4 \text{ mm}$$

### Item description

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

Subject to changes. Please also observe the further product documentation!



## Data

### Notes

#### Safety information 1

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. 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

### IEC Approvals

Ratings per	IEC/EN 60664-1
Rated voltage (III / 3)	320 V
Rated surge voltage (III/3)	4 kV
Rated voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
Nominal voltage (II/2)	630 V
Rated surge voltage (II/2)	4 kV
Rated current	12 A
Legend (ratings)	(III / 2) $\triangleq$ Overvoltage category III / Pollution degree 2

### UL Approvals

Approvals per	UL 1059
Rated voltage UL (Use Group B)	300 V
Rated current UL (Use Group B)	10 A
Rated voltage UL (Use Group D)	300 V
Rated current UL (Use Group D)	10 A

### Ratings per UL

Rated voltage UL 1977	600 V
Rated current UL 1977	10 A

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## CSA Approvals

Approvals per	CSA
Rated voltage CSA (Use Group B)	300 V
Rated current CSA (Use Group B)	10 A
Rated voltage CSA (Use Group D)	300 V
Rated current CSA (Use Group D)	10 A

## Connection data

Total number of potentials	19
Number of connection types	1
Number of levels	1

## Connection 1

Number of poles	19
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## Physical data

Pin spacing	5 mm / 0.197 inch
Width	98.2 mm / 3.866 inch
Height	12.2 mm / 0.48 inch
Height from the surface	8.4 mm / 0.331 inch
Depth	12 mm / 0.472 inch
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

## Plug-in connection

Contact type (pluggable connector)	Male connector/plug
Connector (connection type)	for PCB
Mismating protection	No
Mating direction to the PCB	0°
Locking of plug-in connection	Without

## PCB contact

PCB Contact	THT
Solder pin arrangement	over the entire male connector (in-line)

Subject to changes. Please also observe the further product documentation!

Number of solder pins per potential	1
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### Material data

Color	gray
Material group	I
Insulation material	Polyamide (PA66)
Flammability class per UL94	V0
Contact material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	tin-plated
Fire load	0.105 MJ
Weight	5.9 g

### Environmental requirements


Limit temperature range	-60 ... +100 °C
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### Commercial data

Product Group	3 (Multi Conn. System)
PU (SPU)	50 Stück
Packaging type	box
Country of origin	PL
GTIN	4044918866606
Customs tariff number	8536694040

### Approvals / Certificates

#### Country specific Approvals

Logo	Approval	Additional Approval Text	Certificate name
	CB DEKRA Certification B.V.	IEC 61984	NL-39756
	CSA DEKRA Certification B.V.	C22.2	LR 18677-25

#### Ship Approvals

Logo	Approval	Additional Approval Text	Certificate name
	ABS	-	19-

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American Bureau of Shipping

HG1869876-PDA



**BV**  
Bureau Veritas S.A.

IEC 60998



11915/DO  
BV

**DNV GL**  
Det Norske Veritas, Germanischer Lloyd






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TAE000016Z

**UL-Approvals**

Logo	Approval	Additional Approval Text	Certificate name
	<b>UL</b> Underwriters Laboratories Inc.	UL 1059	E45172
	<b>UR</b> Underwriters Laboratories Inc.	UL 1977	E45171

**Counterpart**

	<b>Item no.231-119/026-000</b> Female plug; 19-pole; 12 AWG max; pin spacing 5 mm; 1 conductor per pole; gray	<a href="http://www.wago.com/231-119/026-000">www.wago.com/231-119/026-000</a>
	<b>Item no.2231-119/026-000</b> Female plug; 19-pole; push-button; 12 AWG max; pin spacing 5 mm; 1-conductor per pole; gray	<a href="http://www.wago.com/2231-119/026-000">www.wago.com/2231-119/026-000</a>
	<b>Item no.231-119/031-000</b> Female plug; 19-pole; push-button; mounting flange; 12 AWG max; pin spacing 5 mm; 1-conductor per pole; gray	<a href="http://www.wago.com/2231-119/031-000">www.wago.com/2231-119/031-000</a>
	<b>Item no.2231-119/102-000</b> Female plug; 19-pole; push-button; with integrated end plate; 12 AWG max; pin spacing 5 mm; 1-conductor per pole; gray	<a href="http://www.wago.com/2231-119/102-000">www.wago.com/2231-119/102-000</a>
	<b>Item no.231-119/027-000</b> Female plug; 19-pole; mounting flange with reinforcing strip; 12 AWG max; pin spacing 5 mm; 1 conductor per pole; gray	<a href="http://www.wago.com/231-119/027-000">www.wago.com/231-119/027-000</a>
	<b>Item no.231-119/031-000</b> Female plug; 19-pole; mounting flange; 12 AWG max; pin spacing 5 mm; 1 conductor per pole; gray	<a href="http://www.wago.com/231-119/031-000">www.wago.com/231-119/031-000</a>

Subject to changes. Please also observe the further product documentation!



**Item no. 231-119/037-000**  
 Female plug; 19-pole; locking lever; 12 AWG max; pin spacing 5 mm; 1 conductor per pole; gray

[www.wago.com/231-119/037-000](http://www.wago.com/231-119/037-000)



**Item no. 2231-119/037-000**  
 Female plug; 19-pole; push-button; locking lever; 12 AWG max; pin spacing 5 mm; 1-conductor per pole; gray

[www.wago.com/2231-119/037-000](http://www.wago.com/2231-119/037-000)



**Item no. 231-119/102-000**  
 Female plug; 19-pole; with integrated end plate; 12 AWG max; pin spacing 5 mm; 1 conductor per pole; gray

[www.wago.com/231-119/102-000](http://www.wago.com/231-119/102-000)



**Item no. 232-219/026-000**  
 1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 19-pole; 2,50 mm²; gray

[www.wago.com/232-219/026-000](http://www.wago.com/232-219/026-000)



**Item no. 232-119/026-000**  
 1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 19-pole; 2,50 mm²; gray

[www.wago.com/232-119/026-000](http://www.wago.com/232-119/026-000)

## Optional accessories

### Coding

Intermediate plate



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

[www.wago.com/231-500](http://www.wago.com/231-500)

Coding



**Item no.: 231-129**  
 Coding key; snap-on type; light gray

[www.wago.com/231-129](http://www.wago.com/231-129)

## Downloads

### Documentation

#### Additional Information

Technical explanations	2019 Apr 3	pdf 2.0 MB	Download
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### CAD files

#### CAD data

2D/3D Models 231-449/001-000	URL	Download
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#### CAE data

EPLAN Data Portal 231-449/001-000	URL	Download
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EPLAN Data Portal 231-449/001-000	<a href="#">URL</a>	<a href="#">Download</a>
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ZUKEN Portal 231-449/001-000	<a href="#">URL</a>	<a href="#">Download</a>
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### PCB Design

Symbol and Footprint 231-449/001-000	<a href="#">URL</a>	<a href="#">Download</a>
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CAX data for your PCB design, consisting of "schematic symbols and PCB footprints", allow easy integration of the WAGO component into your development environment.

### Supported formats:

- Accel EDA 14 & 15
- Altium 6 to current version
- Cadence Allegro
- DesignSpark
- Eagle Libraries
- KiCad
- Mentor Graphics BoardStation
- Mentor Graphics Design Architect
- Mentor Graphics Design Expedition 99 and 2000
- OrCAD 9.X PCB and Capture
- PADS PowerPCB 3, 3.5, 4.X, and 5.X
- PADS PowerPCB and PowerLogic 3.0
- PCAD 2000, 2001, 2002, 2004, and 2006
- Pulsonix 8.5 or newer
- STL
- 3D STEP
- TARGET 3001!
- View Logic ViewDraw
- Quadcept
- Zuken CadStar 3 and 4
- Zuken CR-5000 and CR-8000

PCB Component Libraries (EDA), PCB CAD Library Ultra Librarian

## Environmental Product Compliance

### Compliance Search

Environmental Product Compliance 231-449/001-000	<a href="#">URL</a>	<a href="#">Download</a>
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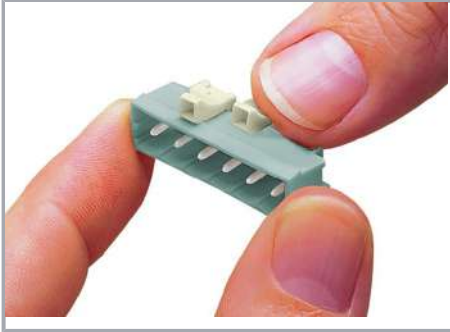
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THT male header; 1.0 x 1.0 mm solder pin; angled; Pin spacing 5 mm; 19-pole; gray

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## Installation Notes



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

## Product family

**MCS MIDI Classic**

[Show all products from the family](#)

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