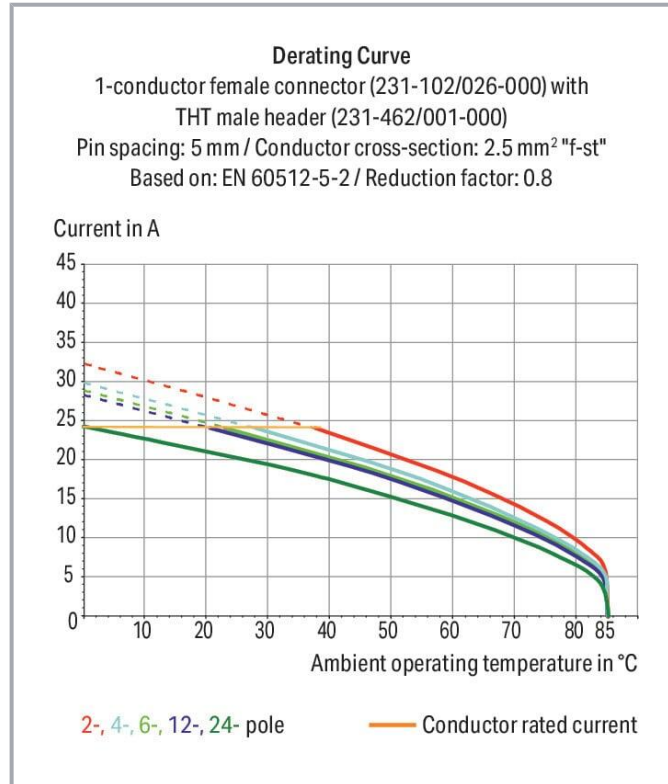


**Data sheet | Item number: 231-449/001-000**

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



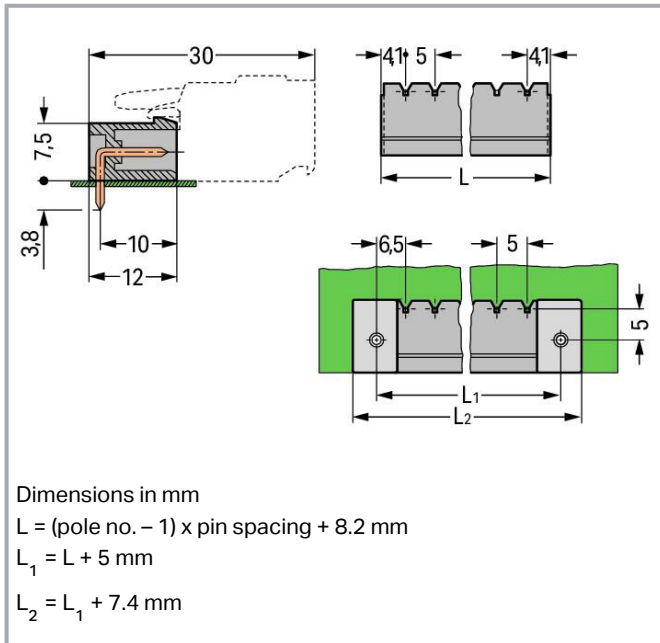
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### Item description

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

### Data

#### 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

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

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### Ratings per IEC/EN

Ratings per	IEC/EN 60664-1
Nominal voltage (III/3)	320 V
Rated impulse voltage (III/3)	4 kV
Rated voltage (III/2)	320 V
Rated impulse 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) $\hat{=}$ Overvoltage category III / Pollution degree 2

### Ratings per UL

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 1977

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

### Ratings per CSA

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

Pole number	19
-------------	----

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

## Physical data

Pin spacing	5 mm / 0.197 inches
Width	98.2 mm / 3.866 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
Plugging without loss of pin spacing	No
Mating direction to the PCB	0 °
Locking of plug-in connection	none

## 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	gray
Material group	I
Insulation material	Polyamide (PA66)
Flammability class per UL94	V0

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

Contact material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	Tin
Fire load	0.203 MJ
Weight	5.9 g

### Environmental requirements

Limit temperature range	-60 ... +100 °C
Processing temperature	-35 ... +60 °C

### 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 8.0	EC002637
ETIM 7.0	EC002637
ECCN	NO DATA
PU (SPU)	50 pcs
Packaging type	box
Country of origin	PL
GTIN	4044918866606
Customs tariff number	85366930000

### Environmental Product Compliance




RoHS Compliance Status	Compliant, No Exemption
------------------------	-------------------------

### Approvals / Certificates

#### General approvals

Logo	Approval	Additional Approval Text	Certificate name
	CB DEKRA Certification B.V.	IEC 61984	NL-39756/A1
	CCC CQC	GB/T 13140.1	CQC03003003013
	CSA DEKRA Certification B.V.	C22.2	1466354




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	<b>KEMA/KEUR</b> DEKRA Certification B.V.	EN 61984	71-121453
	<b>UL</b> Underwriters Laboratories Inc.	UL 1059	E45172
	<b>UR</b> Underwriters Laboratories Inc.	UL 1977	E45171

## Declarations of conformity and manufacturer's declarations

Logo	Approval	Additional Approval Text	Certificate name
	<b>Railway</b> WAGO GmbH & Co. KG	-	Railway Ready

## Approvals for marine applications

Logo	Approval	Additional Approval Text	Certificate name
	<b>ABS</b> American Bureau of Shipping	-	19- HG1869876- PDA
	<b>BV</b> Bureau Veritas S.A.	IEC 60998	11915/DO BV
	<b>DNV</b> DNV GL SE	-	TAE000016Z

## Counterpart



Item no.231-119/026-000

1-conductor female connector; CAGE CLAMP®; 2.5 mm<sup>2</sup>; Pin spacing 5 mm; 19-pole; 2,50 mm<sup>2</sup>; gray[www.wago.com/231-119/026-000](http://www.wago.com/231-119/026-000)

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**Item no. 2231-119/026-000**

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 19-pole; 2,50 mm²; gray

[www.wago.com/2231-119/026-000](http://www.wago.com/2231-119/026-000)



**Item no. 2231-119/031-000**

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 19-pole; clamping collar; 2,50 mm²; gray

[www.wago.com/2231-119/031-000](http://www.wago.com/2231-119/031-000)



**Item no. 2231-119/102-000**

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 19-pole; with integrated end plate; 2,50 mm²; gray

[www.wago.com/2231-119/102-000](http://www.wago.com/2231-119/102-000)



**Item no. 231-119/027-000**

1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 19-pole; clamping collar; 2,50 mm²; gray

[www.wago.com/231-119/027-000](http://www.wago.com/231-119/027-000)



**Item no. 231-119/031-000**

1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 19-pole; clamping collar; 2,50 mm²; gray

[www.wago.com/231-119/031-000](http://www.wago.com/231-119/031-000)



**Item no. 231-119/037-000**

1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 19-pole; Lateral locking levers; 2,50 mm²; gray

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



**Item no. 2231-119/037-000**

1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 19-pole; Lateral locking levers; 2,50 mm²; gray

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



**Item no. 231-119/102-000**

1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 19-pole; with integrated end plate; 2,50 mm²; 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

### Mounting

Mounting accessories



**Item no.: 231-193**

Locking device; for male connectors; 1 part; gray

[www.wago.com/231-193](http://www.wago.com/231-193)

### Coding

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

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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 Section	2019 Apr 3	pdf	Download
Technical explanations		2.1 MB	

**CAD/CAE-Data**

**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	URL	Download
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ZUKEN Portal 231-449/001-000	URL	Download
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**PCB Design**

Symbol and Footprint via Ultra Librarian 231-449/001-000	URL	Download
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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
- Altair
- Altium 6 to current version
- Autodesk Fusion 360
- Cadence Allegro

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- 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
- Zuken eCADSTAR 2020 and 2021Zuken CR-5000 and CR-8000

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

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Symbol and Footprint via SamacSys 231-449/001-000

[URL](#)

[Download](#)

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:

- 3D (stp)
- Altium
- CADSTAR
- Capture
- CircuitStudio
- CR-5000
- CR-8000
- DEHDL
- DesignSpark PCB

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- Easy-PC
- EasyEDA
- eCADSTAR
- KiCad
- OrCAD\_Allegro16
- PADS
- Proteus
- Pulsonix
- Quadcept
- SOLIDWORKS PCB
- TARGET 3001!
- xDX Designer
- Xpedition

PCB Component Libraries (EDA), PCB CAD Library SamacSys Electronic Component Search Engine

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#### Asset Administration Shell

Asset Administration Shell 231-449/001-000	<a href="#">URL</a>	<a href="#">Download</a>
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#### Environmental Product Compliance

##### Compliance Search

Environmental Product Compliance 231-449/001-000	<a href="#">URL</a>	<a href="#">Download</a>
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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

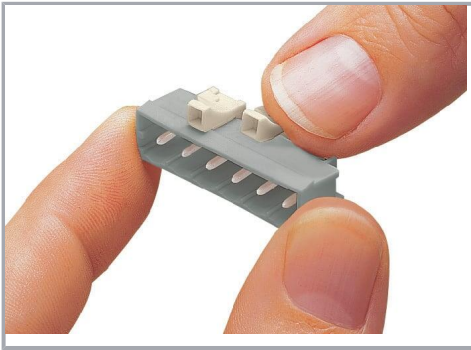
##### Coding

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

## Product family

**MCS MIDI Classic**

[Show all products from the family](#)

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