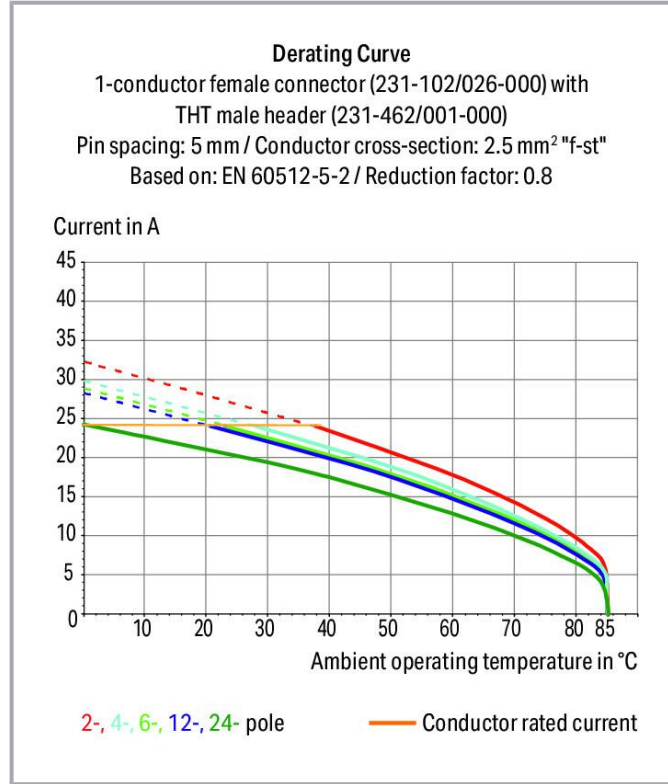
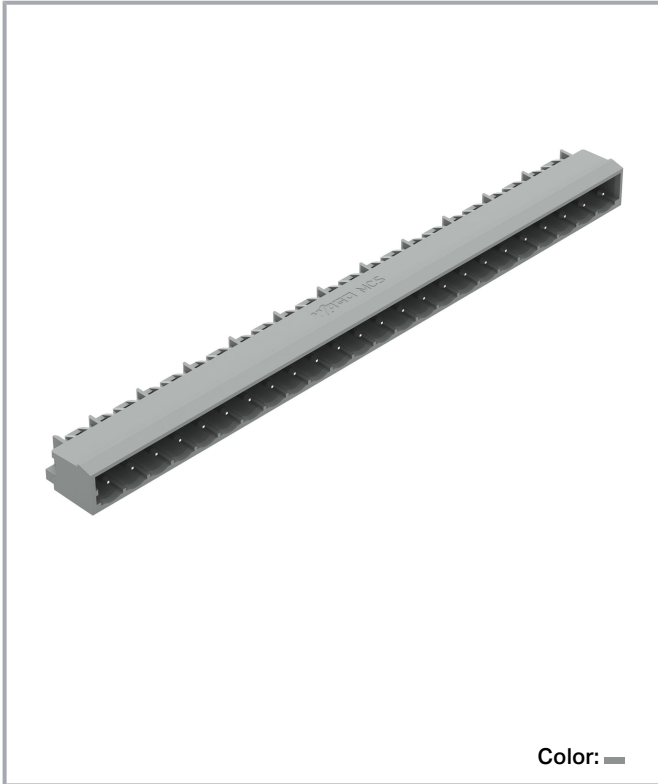


**Data sheet | Item number: 231-454/001-000**

THT male header; 1.0 x 1.0 mm solder pin; angled; Pin spacing 5 mm; 24-pole; gray



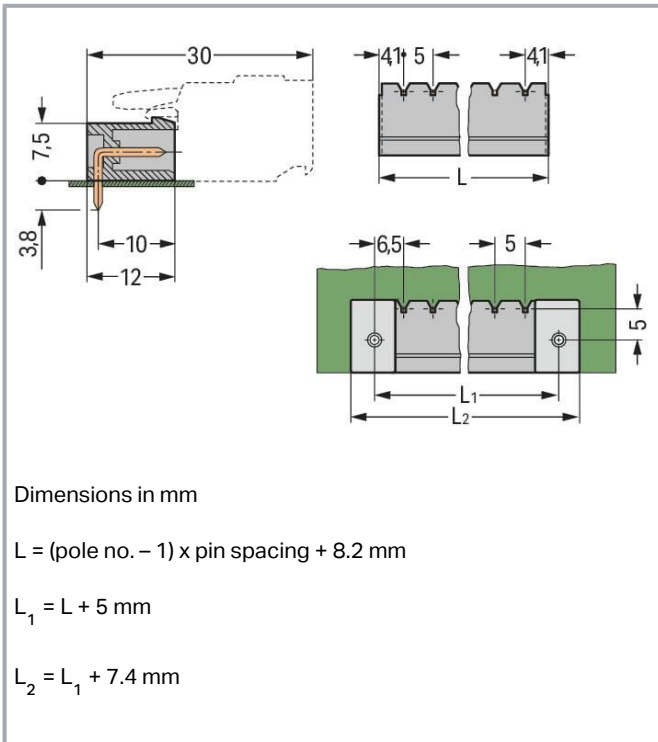
[www.wago.com/231-454/001-000](http://www.wago.com/231-454/001-000)



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

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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/>.

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



## Electrical data

### 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 1059

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	24
Number of connection types	1
Number of levels	1

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

## Connection 1

Pole number	24
-------------	----

## Physical data

Pin spacing	5 mm / 0.197 inches
Width	123.2 mm / 4.85 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

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

Insulation material	Polyamide (PA66)
Flammability class per UL94	V0
Contact material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	Tin
Fire load	0.233 MJ
Weight	7.5 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
PU (SPU)	50 pcs
Packaging type	box
Country of origin	PL
GTIN	4044918866750
Customs tariff number	85366990990

### Environmental Product Compliance

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

#### General approvals


Logo	Approval	Additional Approval Text	Certificate name
	CB DEKRA Certification B.V.	IEC 61984	NL-39756 /A1
	CSA DEKRA Certification B.V.	C22.2	LR 18677- 25
	KEMA/KEUR DEKRA Certification B.V.	EN 61984	71- 121453

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	<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 GL</b> Det Norske Veritas, Germanischer Lloyd	-	TAE000016Z











## Counterpart

	<b>Item no.231-124/026-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm <sup>2</sup> ; Pin spacing 5 mm; 24-pole; 2,50 mm <sup>2</sup> ; gray	<a href="http://www.wago.com/231-124/026-000">www.wago.com/231-124/026-000</a>
<b>Item no.2231-124/026-000</b>		

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	1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; 2,50 mm²; gray	<a href="http://www.wago.com/2231-124/026-000">www.wago.com/2231-124/026-000</a>
	<b>Item no.2231-124/031-000</b> 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; clamping collar; 2,50 mm²; gray	<a href="http://www.wago.com/2231-124/031-000">www.wago.com/2231-124/031-000</a>
	<b>Item no.2231-124/037-000</b> 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; Lateral locking levers; 2,50 mm²; gray	<a href="http://www.wago.com/2231-124/037-000">www.wago.com/2231-124/037-000</a>
	<b>Item no.2231-124/102-000</b> 1-conductor female connector; push-button; Push-in CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; with integrated end plate; 2,50 mm²; gray	<a href="http://www.wago.com/2231-124/102-000">www.wago.com/2231-124/102-000</a>
	<b>Item no.231-124/027-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; clamping collar; 2,50 mm²; gray	<a href="http://www.wago.com/231-124/027-000">www.wago.com/231-124/027-000</a>
	<b>Item no.231-124/031-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; clamping collar; 2,50 mm²; gray	<a href="http://www.wago.com/231-124/031-000">www.wago.com/231-124/031-000</a>
	<b>Item no.231-124/037-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; Lateral locking levers; 2,50 mm²; gray	<a href="http://www.wago.com/231-124/037-000">www.wago.com/231-124/037-000</a>
	<b>Item no.232-124/026-000</b> 1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; 2,50 mm²; gray	<a href="http://www.wago.com/232-124/026-000">www.wago.com/232-124/026-000</a>
	<b>Item no.232-224/026-000</b> 1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; 2,50 mm²; gray	<a href="http://www.wago.com/232-224/026-000">www.wago.com/232-224/026-000</a>
	<b>Item no.231-124/102-000</b> 1-conductor female connector; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 24-pole; with integrated end plate; 2,50 mm²; gray	<a href="http://www.wago.com/231-124/102-000">www.wago.com/231-124/102-000</a>

## 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

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



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

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

## 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)

## Downloads

### Documentation

#### Additional Information

Technical Section	2019 Apr 3	pdf	Download
Technical explanations		2.0 MB	

## CAD/CAE-Data

### CAD data

2D/3D Models 231-454/001-000	URL	Download
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### CAE data

EPLAN Data Portal 231-454/001-000	URL	Download
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EPLAN Data Portal 231-454/001-000	URL	Download
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ZUKEN Portal 231-454/001-000	URL	Download
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### PCB Design

Symbol and Footprint 231-454/001-000	URL	Download
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Cx 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

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



- 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

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## Environmental Product Compliance

### Compliance Search

Environmental Product Compliance 231-454/001-000

[URL](#)

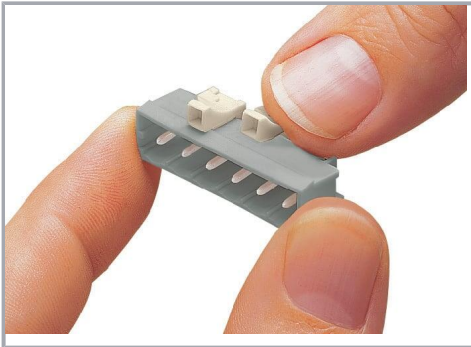
[Download](#)

THT male header; 1.0 x 1.0 mm solder pin; angled; Pin spacing 5 mm; 24-pole; gray

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## Installation Notes

### Coding



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

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Data sheet | Item number: 231-454/001-000

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## Product family

MCS MIDI Classic

[Show all products from the family](#)

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