

**Data sheet | Item number: 232-281**

THT female header; angled; Pin spacing 5.08 mm; 21-pole; 0.6 x 1.0 mm solder pin; orange

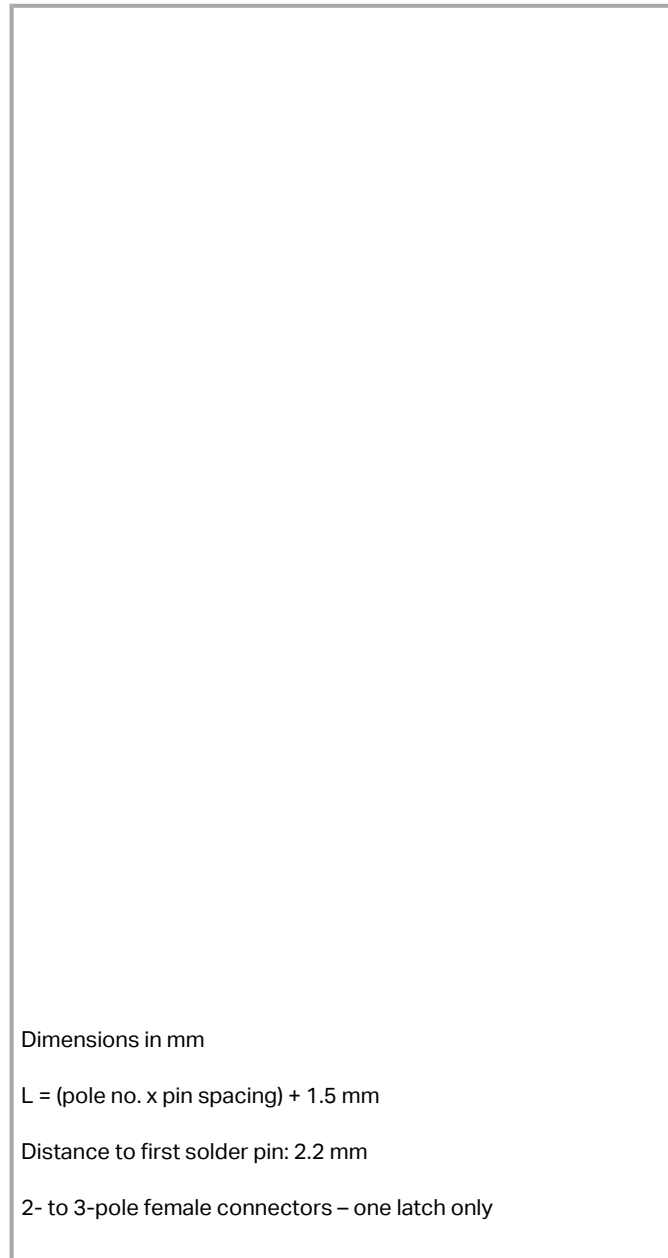
[www.wago.com/232-281](http://www.wago.com/232-281)



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

WAGO Corporation  
Germantown, WI 53022  
Phone: 1-800-DIN-RAIL (346-7245) | Fax: (262) 255-6222  
Email: [info.us@wago.com](mailto:info.us@wago.com) | Web: [www.wago.us](http://www.wago.us)

Do you have any questions about our products?  
We are always happy to take your call at +49 (571) 887-44222.



Dimensions in mm

$L = (\text{pole no.} \times \text{pin spacing}) + 1.5 \text{ mm}$

Distance to first solder pin: 2.2 mm

2- to 3-pole female connectors – one latch only

### Item description

- Horizontal or vertical PCB mounting via straight or angled solder pins
- For board-to-board and board-to-wire connections
- Touch-proof PCB outputs
- Easy-to-identify PCB inputs and outputs
- With coding fingers

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## 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) $\hat{=}$ 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)	15 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	15 A

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## CSA Approvals

Approvals per	CSA
Rated voltage CSA (Use Group B)	300 V
Rated current CSA (Use Group B)	15 A
Rated voltage CSA (Use Group D)	300 V
Rated current CSA (Use Group D)	10 A

## Connection data

Total number of connection points	21
Total number of potentials	21
Number of connection types	1
Number of levels	1

## Connection 1

Number of poles	21
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## Physical data

Pin spacing	5.08 mm / 0.2 inch
Width	108.18 mm / 4.259 inch
Height	16.6 mm / 0.654 inch
Height from the surface	11.6 mm / 0.457 inch
Depth	18.25 mm / 0.719 inch
Solder pin length	5 mm
Solder pin dimensions	0.6 x 1 mm
Drilled hole diameter with tolerance	1.3 <sup>(+0.1)</sup> mm

## Plug-in connection

Contact type (pluggable connector)	Female header
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
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Solder pin arrangement	over the entire female connector (in-line)
Number of solder pins per potential	1

### Material data

Color	orange
Material group	I
Insulation material	Polyamide (PA66)
Flammability class per UL94	V0
Contact material	Copper alloy
Contact plating	tin-plated
Fire load	0.299 MJ
Weight	18.2 g

### Environmental requirements


Limit temperature range	-60 ... +85 °C
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### Commercial data

Product Group	3 (Multi Conn. System)
PU (SPU)	10 Stück
Packaging type	box
Country of origin	DE
GTIN	4044918579667
Customs tariff number	8536694040

### Approvals / Certificates

#### Country specific Approvals

Logo	Approval	Additional Approval Text	Certificate name
	<b>CB</b> DEKRA Certification B.V.	IEC 61984	NL-39756
	<b>KEMA/KEUR</b> DEKRA Certification B.V.	EN 61984	2190761.01

#### Ship Approvals

Logo	Approval	Additional Approval Text	Certificate name

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**ABS**  
American Bureau of Shipping

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19-  
HG15869876-  
PDA





**LR**  
Lloyds Register

IEC 61984

96/20035 (E5)

### UL-Approvals

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

### Counterpart



**Item no.231-651**  
Male connector; 21-pole; Pin spacing 5.08 mm ; orange

[www.wago.com/231-651](http://www.wago.com/231-651)



**Item no.231-651/019-000**  
Male connector; 21-pole; Pin spacing 5.08 mm ; mounting flange; orange

[www.wago.com/231-651/019-000](http://www.wago.com/231-651/019-000)

### Optional accessories

#### Testing accessories

Testing accessories



**Item no.: 231-661**  
Test plugs for female connectors; for 5 mm and 5.08 mm pin spacing; 2,50 mm<sup>2</sup>; light gray

[www.wago.com/231-661](http://www.wago.com/231-661)

### Downloads

#### Documentation

#### Additional Information

Technical explanations	2019 Apr 3	pdf	Download
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2.0 MB

## CAD files

### CAD data

2D/3D Models 232-281	<a href="#">URL</a>	<a href="#">Download</a>
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### CAE data

EPLAN Data Portal 232-281	<a href="#">URL</a>	<a href="#">Download</a>
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ZUKEN Portal 232-281	<a href="#">URL</a>	<a href="#">Download</a>
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## PCB Design

Symbol and Footprint 232-281	<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

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- 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 232-281	URL	Download
THT female header; angled; Pin spacing 5.08 mm; 21-pole; 0.6 x 1.0 mm solder pin; orange		

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## Installation Notes

### Product family

**MCS MIDI Classic**  
[Show all products from the family](#)

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