

Data sheet | Item number: 231-450/001-000

Male header; 20-pole; THT; 1.0 x 1.0 mm solder pin; angled; pin spacing 5 mm; gray

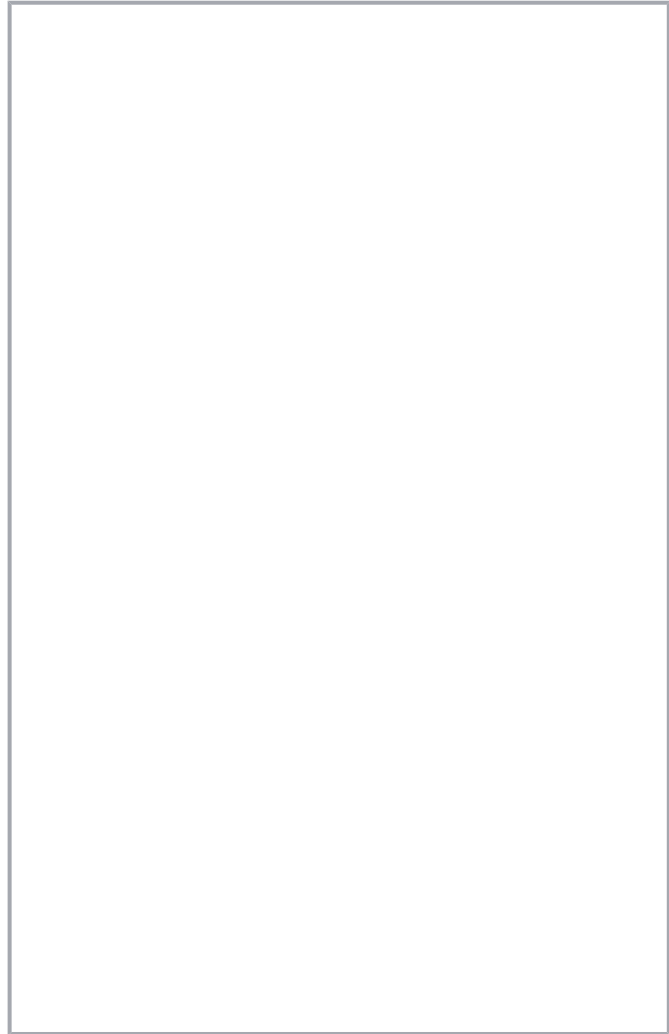


www.wago.com/231-450_001-000



i Picture differs from the item.

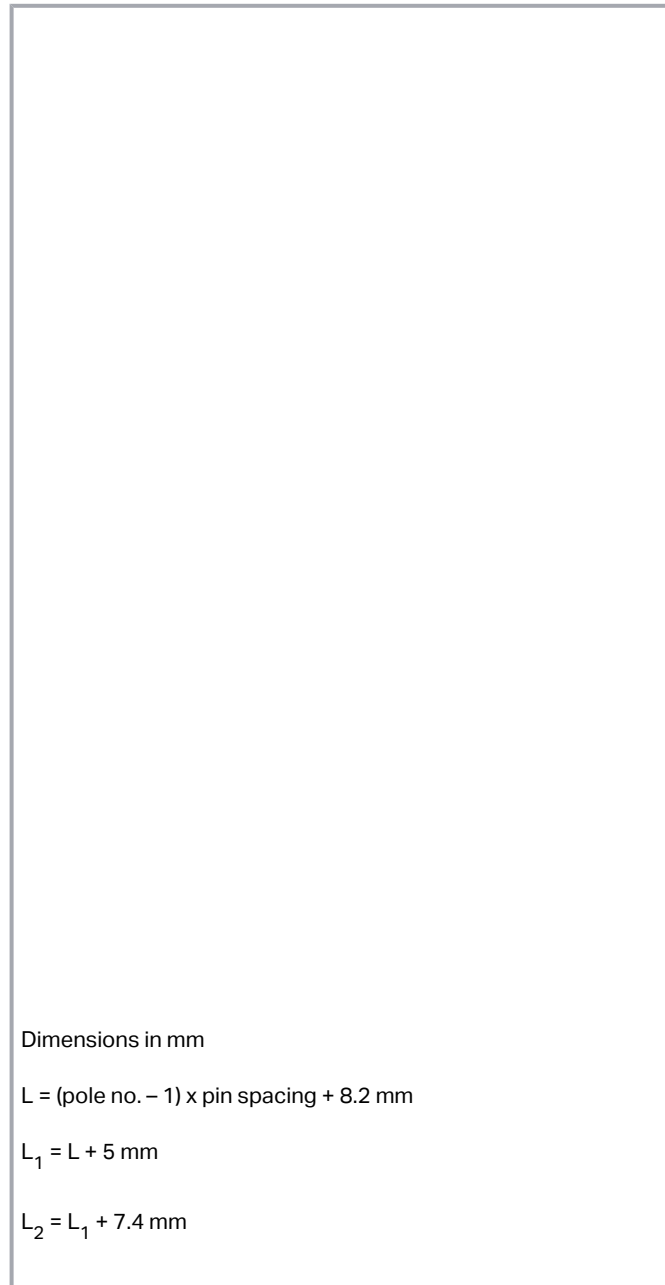
Color: —



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 | Web: 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

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

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

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

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

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 | Web: www.wago.us

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



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	20
Number of connection types	1
Number of levels	1

Connection 1

Number of poles	20
-----------------	----

Physical data

Pin spacing	5 mm / 0.197 inch
Width	103.2 mm / 4.063 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 ^(+0.1) 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
-------------------------------------	---

Material data

Color	gray
Material group	I
Insulation material	Polyamide (PA66)
Flammability class per UL94	V0
Contact material	Electrolytic copper (E _{Cu})
Contact plating	tin-plated
Fire load	0.109 MJ
Weight	6.2 g

Environmental requirements


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

Commercial data

Product Group	3 (Multi Conn. System)
PU (SPU)	50 Stück
Packaging type	box
Country of origin	PL
GTIN	4044918866637
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-

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



American Bureau of Shipping

HG1869876-PDA



BV
Bureau Veritas S.A.

IEC 60998



11915/DO
BV

DNV GL
Det Norske Veritas, Germanischer Lloyd

-

TAE000016Z

UL-Approvals

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

Counterpart



Item no.231-120/026-000
Female plug; 20-pole; 12 AWG max; pin spacing 5 mm; 1 conductor per pole; gray

www.wago.com/231-120/026-000



Item no.2231-120/026-000
Female plug; 20-pole; push-button; 12 AWG max; pin spacing 5 mm; 1-conductor per pole; gray

www.wago.com/2231-120/026-000



Item no.231-120/037-000
Female plug; 20-pole; push-button; locking lever; 12 AWG max; pin spacing 5 mm; 1-conductor per pole; gray

www.wago.com/2231-120/037-000



Item no.2231-120/031-000
Female plug; 20-pole; push-button; mounting flange; 12 AWG max; pin spacing 5 mm; 1-conductor per pole; gray

www.wago.com/2231-120/031-000

Item no.231-120/031-000
Female plug; 20-pole; mounting flange; 12 AWG max; pin spacing 5 mm; 1 conductor per pole; gray

www.wago.com/231-120/031-000



Item no.231-120/027-000
Female plug; 20-pole; mounting flange with reinforcing strip; 12 AWG max; pin spacing 5 mm; 1 conductor per pole; gray

www.wago.com/231-120/027-000



Item no.2231-120/102-000

www.wago.com/2231-120

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



Female plug; 20-pole; push-button; with integrated end plate; 12 AWG max; pin spacing 5 mm; 1-conductor per pole; gray

/102-000



Item no. 231-120/037-000

Female plug; 20-pole; locking lever; 12 AWG max; pin spacing 5 mm; 1 conductor per pole; gray

www.wago.com/231-120/037-000



Item no. 231-120/102-000

Female plug; 20-pole; with integrated end plate; 12 AWG max; pin spacing 5 mm; 1 conductor per pole; gray

www.wago.com/231-120/102-000



Item no. 232-120/026-000

1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole; 2,50 mm²; gray

www.wago.com/232-120/026-000



Item no. 232-220/026-000

1-conductor female connector, angled; CAGE CLAMP®; 2.5 mm²; Pin spacing 5 mm; 20-pole; 2,50 mm²; gray

www.wago.com/232-220/026-000

Optional accessories

Coding

Intermediate plate



Item no.: 231-500

Spacer; for formation of groups; light gray

www.wago.com/231-500

Coding



Item no.: 231-129

Coding key; snap-on type; light gray

www.wago.com/231-129

Downloads

Documentation

Additional Information

Technical explanations	2019 Apr 3	pdf 2.0 MB	Download
------------------------	------------	---------------	----------

CAD files

CAE data

EPLAN Data Portal 231-450/001-000	URL	Download
ZUKEN Portal 231-450/001-000	URL	Download
EPLAN Data Portal 231-450/001-000	URL	Download

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 | Web: www.wago.us

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



PCB Design

Symbol and Footprint 231-450/001-000

[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:

- 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

CAD data

2D/3D Models 231-450/001-000

[URL](#)

[Download](#)

Environmental Product Compliance

Compliance Search

Environmental Product Compliance 231-450/001-000

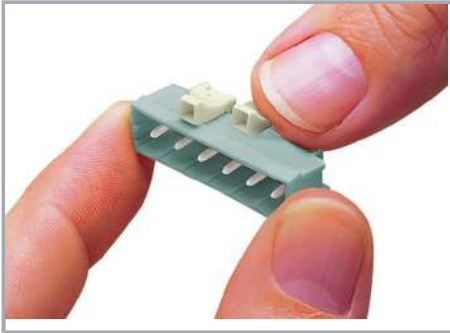
Subject to changes. Please also observe the further product documentation!

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

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

THT male header; 1.0 x 1.0 mm solder pin; angled; Pin spacing 5 mm; 20-pole; gray

Installation Notes



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

Product family

MCS MIDI Classic

[Show all products from the family](#)

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