

# IPC 16/ 2-STF-10,16 - PCB connector



1969454

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PCB connector, nominal cross section: 16 mm<sup>2</sup>, color: green, nominal current: 76 A, rated voltage (III/2): 1000 V, contact surface: Silver, type of contact: Pin, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: IPC 16/..-STF, pitch: 10.16 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: 0 °, locking clip: - without locking clip, plug-in system: COMBICON PC 16, locking: Screw locking, mounting: Screw flange, type of packaging: packed in cardboard

## Your advantages

- Well-known connection principle allows worldwide use
- Low temperature rise, thanks to maximum contact force
- Allows connection of two conductors
- Inverted connector with pin contacts for touch-proof device outputs or free-hanging cable/cable connections
- Screwable flange for superior mechanical stability

## Commercial Data

Item number	1969454
Packing unit	25 pc
Minimum order quantity	25 pc
Sales Key	AAE
Product Key	AAEABB
Catalog Page	Page 559 (C-1-2013)
GTIN	4017918943707
Weight per Piece (including packing)	25.172 g
Weight per Piece (excluding packing)	22.034 g
Customs tariff number	85366990
Country of origin	PL

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## Technical Data

### Product properties

Type	Inverted
Product line	COMBICON Connectors XL
Product type	PCB plug
Product family	IPC 16/...-STF
Number of positions	2
Pitch	10.16 mm
Number of connections	2
Number of rows	1
Mounting flange	Screw flange
Number of potentials	2

### Electrical properties

Nominal current $I_N$	76 A
Nominal voltage $U_N$	1000 V
Degree of pollution	3
Contact resistance	0.3 mΩ
Rated voltage (III/3)	1000 V
Rated surge voltage (III/3)	8 kV
Rated voltage (III/2)	1000 V
Rated surge voltage (III/2)	8 kV
Rated voltage (II/2)	1000 V
Rated surge voltage (II/2)	6 kV

### Connection data

#### Connection technology

Type	Inverted
Connector system	COMBICON PC 16
Nominal cross section	16 mm <sup>2</sup>
Type of contact	Pin

#### Interlock

Locking type	Screw locking
Mounting flange	Screw flange
Tightening torque	0.3 Nm

#### Conductor connection

Connection method	Screw connection with tension sleeve
Conductor/PCB connection direction	0 °
Conductor cross section rigid	0.75 mm <sup>2</sup> ... 16 mm <sup>2</sup>
Conductor cross section flexible	0.75 mm <sup>2</sup> ... 16 mm <sup>2</sup>
Conductor cross section AWG	18 ... 6

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Conductor cross section flexible, with ferrule without plastic sleeve	0.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.5 mm <sup>2</sup> ... 10 mm <sup>2</sup>
2 conductors with same cross section, solid	0.75 mm <sup>2</sup> ... 6 mm <sup>2</sup>
2 conductors with same cross section, flexible	0.75 mm <sup>2</sup> ... 6 mm <sup>2</sup>
2 conductors with same cross section, flexible, with ferrule without plastic sleeve	0.5 mm <sup>2</sup> ... 4 mm <sup>2</sup>
2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve	0.5 mm <sup>2</sup> ... 6 mm <sup>2</sup>
Cylindrical gauge a x b / diameter	- / 5.4 mm
Stripping length	12 mm
Tightening torque	1.7 Nm ... 1.8 Nm

## Material specifications

### Material data - contact

Note	WEEE/RoHS-compliant, free of whiskers according to IEC 60068-2-82/JEDEC JESD 201
Contact material	Cu alloy
Surface characteristics	completely silver-plated
Metal surface terminal point (top layer)	Silver (4 - 8 µm Ag)
Metal surface contact area (top layer)	Silver (4 - 8 µm Ag)

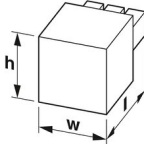
### Material data - housing

Color (Housing)	green (6021)
Insulating material	PA
Insulating material group	I
CTI according to IEC 60112	600
Flammability rating according to UL 94	V0
Glow wire flammability index GWFI according to EN 60695-2-12	850
Glow wire ignition temperature GWIT according to EN 60695-2-13	775
Temperature for the ball pressure test according to EN 60695-10-2	125 °C

### Material data – actuating element

Color ( )	( )
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## Dimensions

Dimensional drawing	
Pitch	10.16 mm
Width [w]	38.08 mm
Height [h]	27.8 mm

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Length [l]	44.1 mm
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## Mounting

Drive form screw head	Slotted (L)
Drive form screw head	Slotted (L)

## Flange

Tightening torque	0.3 Nm
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## Notes

Notes on operation	In accordance with IEC 61984, COMBICON connectors have no switching power (COC). During designated use, they must not be plugged in or disconnected when carrying voltage or under load.
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## Mechanical tests

### Test for conductor damage and slackening

Specification	IEC 60999-1:1999-11
Result	Test passed

### Pull-out test

Specification	IEC 60999-1:1999-11
Conductor cross section/conductor type/tractive force setpoint/actual value	0.75 mm <sup>2</sup> / solid / > 30 N
	0.75 mm <sup>2</sup> / flexible / > 30 N
	16 mm <sup>2</sup> / solid / > 100 N
	16 mm <sup>2</sup> / flexible / > 100 N

### Insertion and withdrawal forces

Result	Test passed
No. of cycles	50
Insertion strength per pos. approx.	12 N
Withdraw strength per pos. approx.	11 N

### Torque test

Specification	IEC 60999-1:1999-11
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### Contact holder in insert

Specification	IEC 60512-15-1:2008-05
Contact holder in insert Requirements >20 N	Test passed

### Resistance of inscriptions

Specification	IEC 60068-2-70:1995-12
Result	Test passed

### Polarization and coding

Specification	IEC 60512-13-5:2006-02
Result	Test passed

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## Visual inspection

Specification	IEC 60512-1-1:2002-02
Result	Test passed

## Dimension check

Specification	IEC 60512-1-2:2002-02
Result	Test passed

## Environmental and real-life conditions

### Vibration test

Specification	IEC 60068-2-6:2007-12
Frequency	10 - 150 - 10 Hz
Sweep speed	1 octave/min
Amplitude	0.35 mm (10 Hz ... 60.1 Hz)
Sweep speed	5g (60.1 Hz ... 150 Hz)
Test duration per axis	2.5 h

### Durability test

Specification	IEC 60512-9-1:2010-03
Impulse withstand voltage at sea level	9.8 kV
Contact resistance $R_1$	0.3 m $\Omega$
Contact resistance $R_2$	0.3 m $\Omega$
Insertion/withdrawal cycles	50
Insulation resistance, neighboring positions	> 5 M $\Omega$

### Climatic test

Specification	ISO 6988:1985-02
Corrosive stress	0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/1 cycle
Thermal stress	105 °C/168 h
Power-frequency withstand voltage	4.26 kV

### Shocks

Specification	IEC 60068-2-27:2008-02
Pulse shape	Semi-sinusoidal
Acceleration	30g
Shock duration	18 ms
Test directions	X-, Y- and Z-axis (pos. and neg.)

### Ambient conditions

Ambient temperature (operation)	-40 °C ... 105 °C (dependent on the derating curve)
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Relative humidity (storage/transport)	30 % ... 70 %
Ambient temperature (assembly)	-5 °C ... 100 °C

## Electrical tests

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## Thermal test | Test group C

Specification	IEC 60512-5-1:2002-02
Tested number of positions	9

## Insulation resistance

Specification	IEC 60512-3-1:2002-02
Insulation resistance, neighboring positions	> 5 MΩ

## Air clearances and creepage distances |

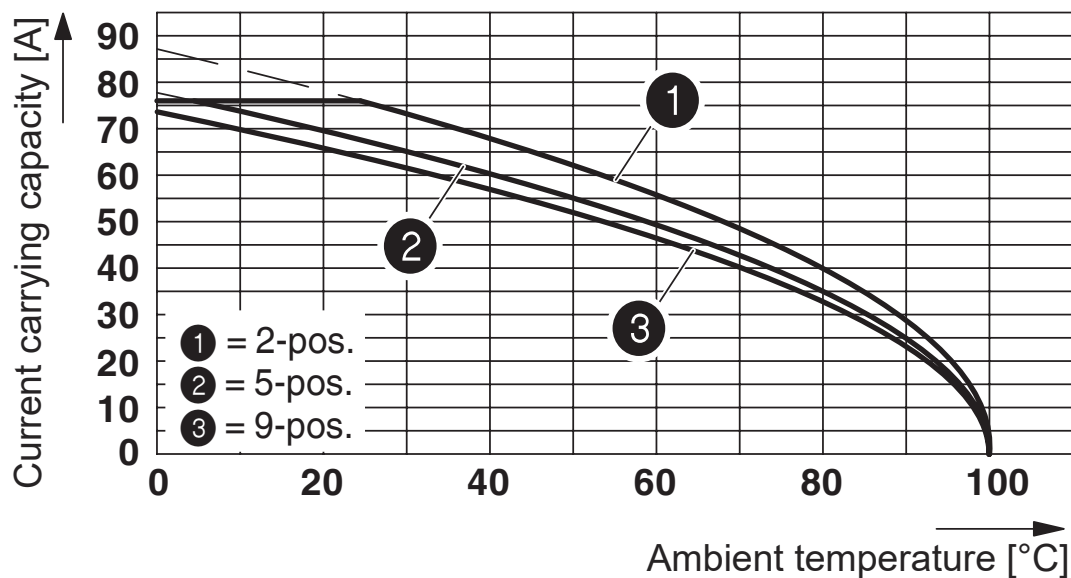
Specification	IEC 60664-1:2007-04
Insulating material group	I
Comparative tracking index (IEC 60112)	CTI 600
Rated insulation voltage (III/3)	1000 V
Rated surge voltage (III/3)	8 kV
minimum clearance value - non-homogenous field (III/3)	8 mm
minimum creepage distance (III/3)	12.5 mm
Rated insulation voltage (III/2)	1000 V
Rated surge voltage (III/2)	8 kV
minimum clearance value - non-homogenous field (III/2)	8 mm
minimum creepage distance (III/2)	8 mm
Rated insulation voltage (II/2)	1000 V
Rated surge voltage (II/2)	6 kV
minimum clearance value - non-homogenous field (II/2)	5.5 mm
minimum creepage distance (II/2)	5.5 mm

## Packaging specifications

Type of packaging	packed in cardboard
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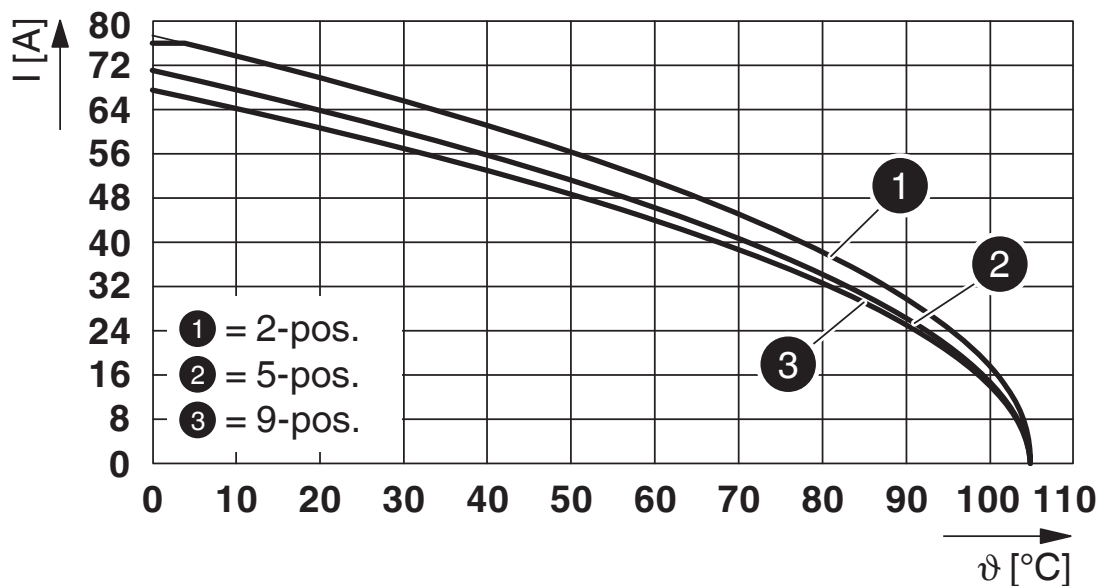
## Drawings

Diagram



Type: IPC 16/...-STF-10,16 with DFK-IPC 16/...-GF-10,16

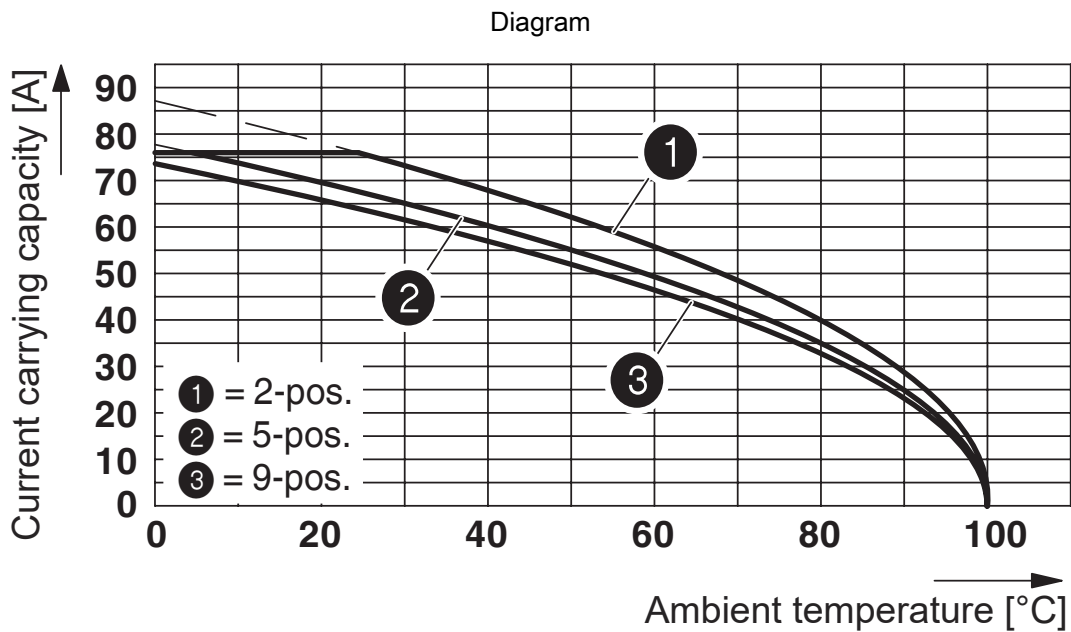
Diagram



Type: IPC 16/...-STF-10,16 with IPC 16/...-GF-10,16

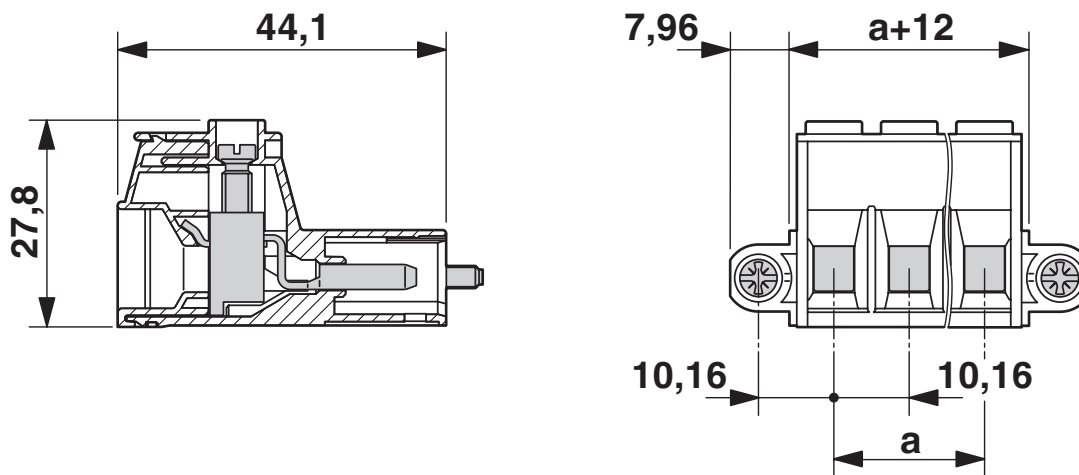
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Type: IPC 16/...-STF-10,16 with DFK-IPC 16/...-GF-SH-10,16

Dimensional drawing



The figure shows the 3-pos. version



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## Approvals



**EAC**

Approval ID: B.01687



**cULus Recognized**

Approval ID: E60425-20040202

	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	600 V	55 A	20 - 6	-
	600 V	55 A	20 - 6	-



**IECEE CB Scheme**

Approval ID: DE1-66677

	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	-	76 A	-	0.75 - 16



**VDE Zeichengenehmigung**

Approval ID: 40055586

	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	-	76 A	-	0.75 - 16

# IPC 16/ 2-STF-10,16 - PCB connector



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## Classifications

### ECLASS

ECLASS-11.0	27460202
ECLASS-12.0	27460202
ECLASS-13.0	27460202

### ETIM

ETIM 8.0	EC002638
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### UNSPSC

UNSPSC 21.0	39121400
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## Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

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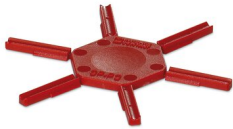
## Accessories

### CP-PC RD - Coding profile

1701967

<https://www.phoenixcontact.com/in/products/1701967>

Coding profile, for plugging into the coding ribs of the plug at a later date, insulating material, color: Red



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### SZS 1,0X4,0 VDE - Screwdriver

1205066

<https://www.phoenixcontact.com/in/products/1205066>

Screwdriver, slot-headed, VDE insulated, size: 1.0 x 4.0 x 100 mm, 2-component grip, with non-slip grip



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## SK 5,0 WH:REEL - Marker strip

0805221

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Marker strip, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: adhesive, for terminal block width: 5 mm, lettering field size: continuous x 5 mm, Number of individual labels: 90000

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## CRIMPFOX 6 - Crimping pliers

1212034

<https://www.phoenixcontact.com/in/products/1212034>



Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm<sup>2</sup> ... 6.0 mm<sup>2</sup>, lateral entry, trapezoidal crimp

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## IPC 16/ 2-GF-10,16 - PCB header

1969616

<https://www.phoenixcontact.com/in/products/1969616>



PCB headers, nominal cross section: 16 mm<sup>2</sup>, color: green, nominal current: 76 A, rated voltage (III/2): 1000 V, contact surface: Silver, type of contact: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: IPC 16/...-GF, pitch: 10.16 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 4 mm, number of solder pins per potential: 3, plug-in system: COMBICON PC 16, Pin connector pattern alignment: Standard, locking: Screw locking, mounting: Threaded flange, type of packaging: packed in cardboard

## IPC 16/ 2-GFU-10,16 - PCB header

1969933

<https://www.phoenixcontact.com/in/products/1969933>



PCB headers, nominal cross section: 16 mm<sup>2</sup>, color: green, nominal current: 76 A, rated voltage (III/2): 1000 V, contact surface: Silver, type of contact: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: IPC 16/...-GFU, pitch: 10.16 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 4 mm, number of solder pins per potential: 3, plug-in system: COMBICON PC 16, Pin connector pattern alignment: reversed, locking: Screw locking, mounting: Threaded flange, type of packaging: packed in cardboard, Plug direction parallel to the PCB: connector part rotated by 180° with respect to the plug axis.

# IPC 16/ 2-STF-10,16 - PCB connector

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## IPCV 16/ 2-GF-10,16 - PCB header

1969771

<https://www.phoenixcontact.com/in/products/1969771>



PCB headers, nominal cross section: 16 mm<sup>2</sup>, color: green, nominal current: 76 A, rated voltage (III/2): 1000 V, contact surface: Silver, type of contact: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: IPCV 16/..-GF, pitch: 10.16 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 4 mm, number of solder pins per potential: 3, plug-in system: COMBICON PC 16, Pin connector pattern alignment: Standard, locking: Screw locking, mounting: Threaded flange, type of packaging: packed in cardboard

## DFK-IPC 16/ 2-GF-SH-10,16 - Feed-through header

1702976

<https://www.phoenixcontact.com/in/products/1702976>



Feed-through header, nominal cross section: 16 mm<sup>2</sup>, color: green, nominal current: 76 A, rated voltage (III/2): 1000 V, contact surface: Silver, type of contact: Socket, number of potentials: 2, number of rows: 1, number of positions: 2, number of connections: 2, product range: DFK-IPC 16/..-GF-SH, pitch: 10.16 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 4.1 mm, number of solder pins per potential: 3, plug-in system: COMBICON PC 16, Pin connector pattern alignment: Standard, locking: Screw locking, mounting: Threaded flange, type of packaging: packed in cardboard

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