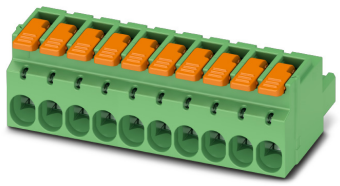
2021-06-02
Product version 01
Document revision 01

Data sheet

Order No.: 1110590

Type: LPC 2,5/ 9-ST-5,08

PCB connector, Lever Push-in connection



The figure shows an 10-position version

1 Main features

- No. of pos. 9
- Conductor cross section 2.5 mm²
- Color green (6021)
- Pitch 5.08 mm
- Connection method Lever Push-in connection
- Nominal current 16 A
- Nominal voltage 320 V
- Connection direction 0 °
- Type of packaging packed in cardboard

2 Your advantages

- Tool-free lever principle enables time-saving connection and release of conductors with/without ferrules
- Clear lever positions provide reliable feedback on opened or closed clamping spaces
- Time-saving push-in connection when lever is closed
- Quick and convenient testing using integrated test option

Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/1110590

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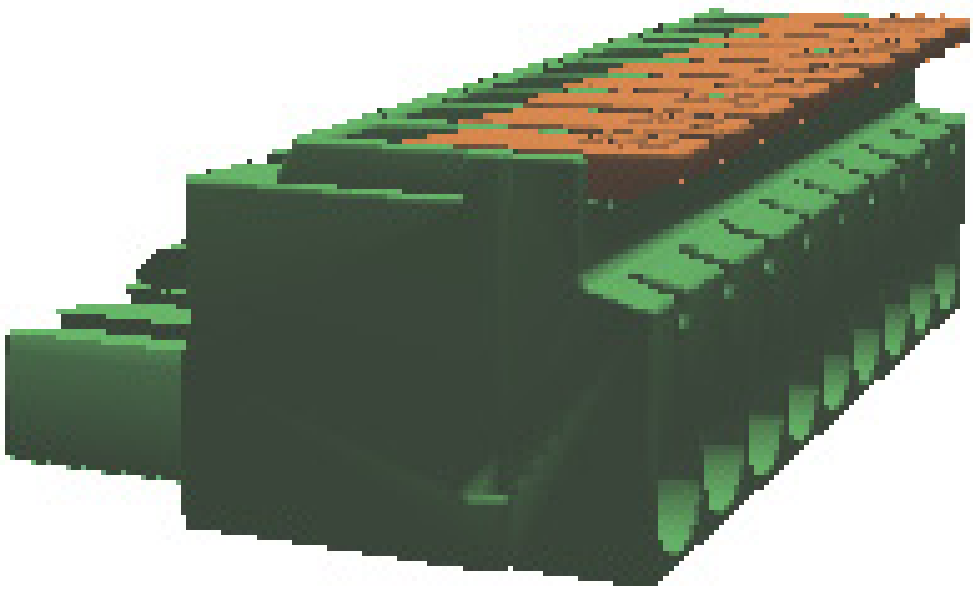
4 3D model in PDF can be activated (Acrobat Reader only)



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5 General Technical Data

5.1 item properties

Order No.	1110590
Type	LPC 2,5/ 9-ST-5,08
Connector system	CLASSIC COMBICON
Product type	PCB connector
Type of contact	Female connector
Range of articles	LPC 2,5/..-ST
Pitch	5.08 mm
Number of positions	9
Number of levels	1
Connection method	Lever Push-in connection
Connection direction of the conductor to plug-in direction	0 °

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6 Mounting

6.1 Flange mounting

Type of locking	without
Mounting flange	without

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7 Conductor connection

7.1 Connection capacity

Nominal cross section	2.5 mm²
Conductor cross section, rigid	0.2 mm² ... 2.5 mm²
Conductor cross section, flexible	0.2 mm² ... 2.5 mm²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² ... 2.5 mm² (Stripping length: 7 mm ... 12 mm)
Conductor cross section flexible, with ferrule with plastic sleeve	0.25 mm² ... 2.5 mm² (Stripping length: 7 mm ... 12 mm)
2 conductors with the same cross section flexible with TWIN ferrule and plastic sleeve	0.5 mm² ... 1 mm² (Stripping length: 7 mm ... 12 mm)
Cylindrical gauge a x b / diameter	2.8 mm x 2.0 mm / 2.4 mm
Stripping length	10 mm

7.2 Connection capacity AWG

Conductor cross section AWG	26 ... 12

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8 Material properties

8.1 Material of metal parts

Note	WEEE/RoHS-compliant, whisker-free acc. to IEC 60068-2-82/JEDEC JESD 201
Contact material	Cu alloy
Terminal point surface	Tin (4 - 8 µm Sn)
Surface contact area	Tin (4 - 8 µm Sn)
Surface characteristics	hot-dip tin-plated

8.2 Material of plastic parts

	Housing	Actuation element
Color	green (6021)	orange (2003)
Insulating material	PA	PA GF
Insulating material group	I	I
CTI according to IEC 60112	600	600
Flammability rating according to UL 94	V0	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	

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9 Dimensions

9.1 Dimensions for the product

Length	27.37 mm
Width	47.43 mm
Total height	15.39 mm

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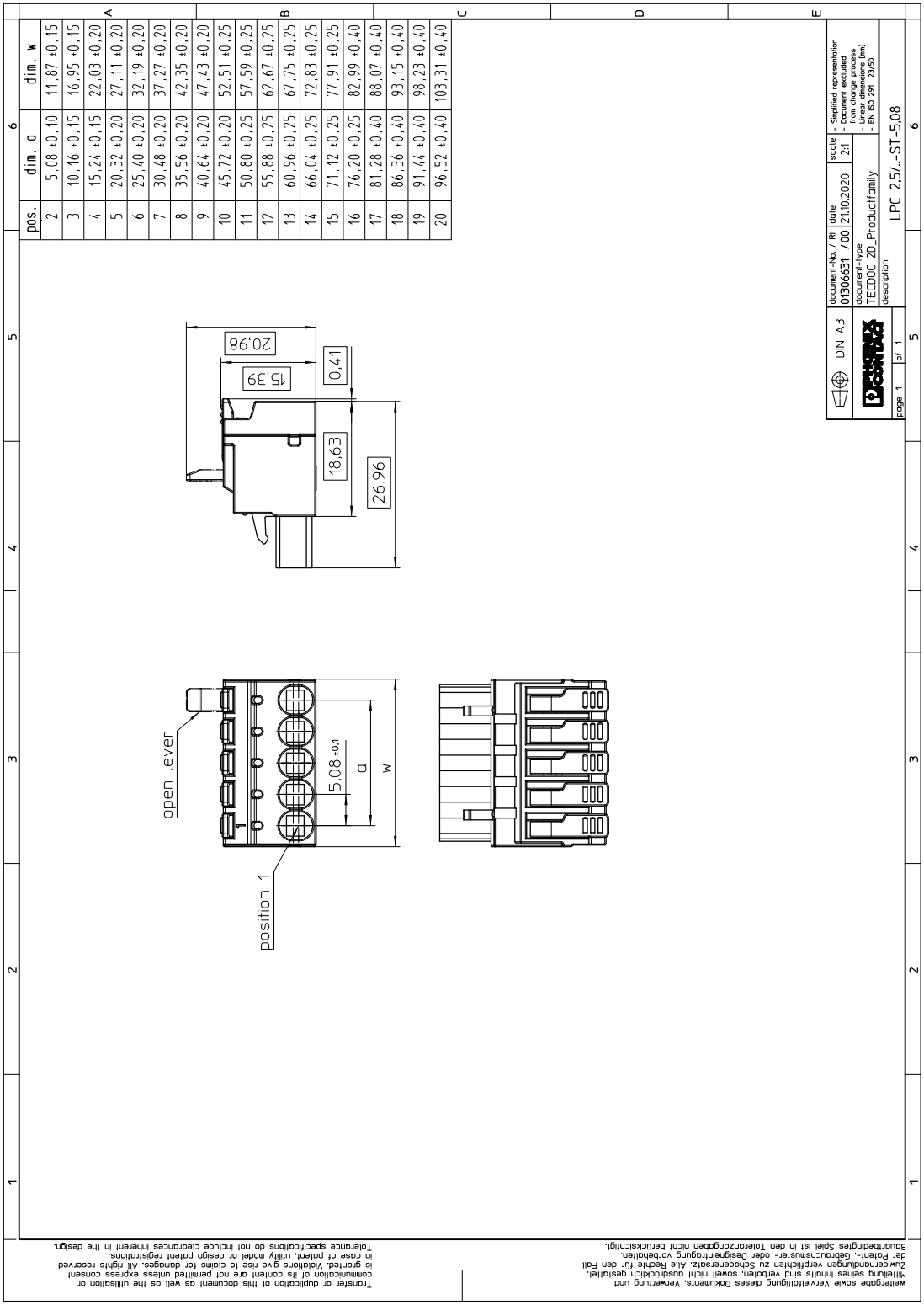
10 Series drawing



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11 Product notes

11.1 General information

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.

12 Packaging information

Type of packaging	packed in cardboard
Pieces per package	50

13 Application

Ferrules without insulating collar, according to DIN 46228–1	
Recommended crimping pliers	1212034 CRIMPFOX 6
Ferrules without insulating collar, according to DIN 46228–1	Cross section: 0.25 mm²; Length: 7 mm Cross section: 0.34 mm²; Length: 7 mm Cross section: 0.5 mm²; Length: 8 mm ... 10 mm Cross section: 0.75 mm²; Length: 8 mm ... 10 mm Cross section: 1 mm²; Length: 8 mm ... 12 mm Cross section: 1.5 mm²; Length: 10 mm ... 12 mm Cross section: 2.5 mm²; Length: 10 mm ... 12 mm

Ferrules with insulating collar, according to DIN 46228–4	
Recommended crimping pliers	1212034 CRIMPFOX 6
Ferrules with insulating collar, according to DIN 46228–4	Cross section: 0.25 mm²; Length: 8 mm ... 10 mm Cross section: 0.34 mm²; Length: 8 mm ... 10 mm Cross section: 0.5 mm²; Length: 8 mm ... 10 mm Cross section: 0.75 mm²; Length: 10 mm ... 12 mm Cross section: 1 mm²; Length: 10 mm ... 12 mm Cross section: 1.5 mm²; Length: 10 mm ... 12 mm Cross section: 2.5 mm²; Length: 12 mm

13.1 Temperature limit values

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

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14 General tests

14.1 Specification

Specification	IEC 61984
Specification	IEC 60999-1
Brief description	Printed-circuit board connector

15 Mechanical tests

15.1 Check for damage to conductor or loosening

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

15.2 Pull-out test

Specification	IEC 60999-1:1999-11
Result	Test passed
Conductor cross section/conductor type/tractive force actual value	0.2 mm^2 / solid / > 10 N
Conductor cross section/conductor type/tractive force actual value	0.2 mm^2 / flexible / > 10 N
Conductor cross section/conductor type/tractive force actual value	2.5 mm^2 / solid / > 50 N
Conductor cross section/conductor type/tractive force actual value	2.5 mm^2 / flexible / > 50 N

15.3 Repeated connection and disconnection

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

15.4 Conductor connection

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

15.5 Visual examination

Specification	IEC 61984:2008-10
Visual examination	Test passed
Specification	IEC 60512-1-1:2002-02

15.6 Dimensional test

Dimensional test	Test passed
Specification	IEC 60512-1-2:2002-02

15.7 Resistance of marking

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Resistance of marking	Test passed
Specification	IEC 60068-2-70:1995-12

15.8 Polarization and coding

Polarization when inserted Requirement >20 N	Test passed
Specification	IEC 60512-13-5:2006-02

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16 Insertion and withdrawal forces

Insertion and withdrawal force	Test passed
Specification	IEC 60512-13-2:2006-02
No. of cycles	25
Insertion strength per pos. approx.	7 N
Withdraw strength per pos. approx.	6 N

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17 Electrical tests

Rated current / conductor cross section	16 A / 2.5 mm²
Rated insulation voltage (III/2)	320 V
Rated surge voltage (III/2)	4 kV
Contact resistance	1 mΩ
Degree of pollution	2

17.1 Air and creepage distances

Component	PCB connector		
Specification	IEC 60664-1:2007-04		
Mains type	unearthed mains		
Insulating material group	I		
Comparative tracking index (IEC 60112:2003-01)	CTI 600		
Rated insulation voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Degree of pollution	3	2	2
Overvoltage category	III	III	II
Minimum clearance case A (inhomogeneous field)	3 mm	3 mm	3 mm
Minimum value of the creepage path requirement in acc. with table	3.2 mm	3 mm	3.2 mm

17.2 Electrical function

Specification	IEC 60999-1:1999-11
Result	Test passed
Voltage drop	Voltage drop (U) after the load ≤ 15 mV
Test current (minimum cross section)	3 A AC
Test current (maximum cross section)	16 A AC
Conductor cross section, flexible	0.2 mm² ... 2.5 mm²
Conductor cross section, rigid	0.2 mm² ... 2.5 mm²

17.3 Temperature cycles

Specification	IEC 60999-1:1999-11
Result	Test passed
Voltage drop	Voltage drop (U) after the load ≤ 22.5 mV or 1.5 x $U_{\text{after 24 h}}$ The small value is to be used.
Test current (minimum cross section)	3 A AC
Test current (maximum cross section)	16 A AC
Temperature cycles	192
Conductor cross section, flexible	0.2 mm² ... 2.5 mm²
Conductor cross section, rigid	0.2 mm² ... 2.5 mm²

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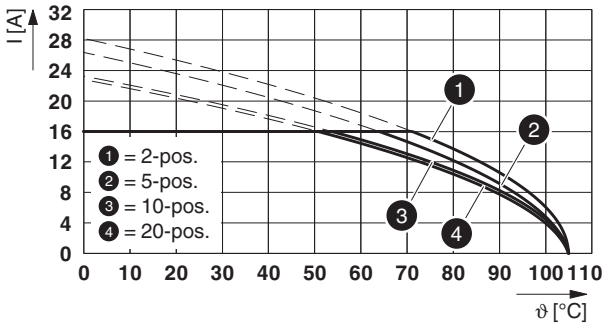
18 Current carrying capacity/derating curves

Specification	IEC 61984:2008-10
Note	Representation based on IEC 60512-5-2:2002-02
Note	For number of positions, see diagram
Reduction factor	0.8
Conductor cross section	2.5 mm²

Type: LPC 2,5/...-ST-5,08 with CCA 2,5/...-G-5,08 P...THR



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19 Environmental and durability tests

19.1 Vibration test

Specification	IEC 60068-2-6:2007-12
Result	Test passed
Frequency	10 - 150 - 10 Hz
Sweep speed	1 octave/min
Amplitude	0.35 mm (10 - 60.1 Hz)
Acceleration	50 m/s² (60.1 - 150 Hz)
Test duration per axis	2.5 h
Test directions	X-, Y- and Z-axis
Note	

19.2 Railway application, vibration test

Specification	IEC 61373:2010-05
Result	Test passed
Testing	Vibration, broadband noise
Frequency	5 - 150 Hz
Test directions	X-, Y- and Z-axis (pos. and neg.)
Spectrum	Service life test category 1, class B, body mounted

20 Classification for connectors

Specification	IEC 61984:2008-10
Main features	Connectors without switching capacity (COC)
Construction form	Fixed connectors
Strain relief elements	without strain relief
Connection method	Can be reconnected
Protection against electric shock	Not encapsulated - touch-proof when inserted
Protective conductor	without PE
Lock	no
Connection method	Screwless terminal points

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21 Commercial Data

Order No.	1110590
Type	LPC 2,5/ 9-ST-5,08
Pieces per package	50
Net weight	2.22 g
GTIN	4063151027346
	Information that applies locally, see link on page 1
	Information that applies locally, see link on page 1

22 Accessories

Description	Order No.	Type
Coding profile, is inserted into the slot on the plug or inverted header, red insulating material	1734634	CP-MSTB

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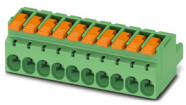
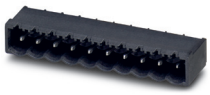
23 Combination tests





LPC 2,5/..-ST	**CCA 2,5/..-G**
IEC 61984	IEC 61984
Mechanical tests (A)	
Insertion/withdrawal force per position	approx. 7 N / 6 N
Polarization when inserted Requirement >20 N	Test passed
Contact holder in insert Requirements >20 N	Test passed
Durability tests (B)	
Contact resistance R_1 1st level	1 mΩ
Contact resistance R_1 2nd level	
Insertion/withdrawal cycles	25
Contact resistance R_2	1.2 mΩ
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	4.8 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.21 kV
Thermal tests (C)	
Tested number of positions	20
Tested conductor cross section	2.5 mm^2
Test current	16 A
Upper limiting temperature Requirements < 100°C	Test passed
Climatic tests (D)	
Test sequence 1: low temperature storage	-40 °C/2 h
Test sequence 2: heat storage	105 °C/168 h
Test sequence 3: noxious gas storage (ISO 6988)	0.2 dm^3 SO_2 on 300 dm^3/ 40 °C/1 cycle
Rated impulse voltage at sea level Voltage waveform ≥ (1.2/50 µs)	4.8 kV
Power-frequency withstand voltage Voltage waveform ≥ (50/60 Hz)	2.21 kV
Environmental and endurance tests (E)	
Specification	IEC 61984:2008-10
Degree of protection	Finger safety with IP20 test finger

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