

Data sheet

Order No.: 1110649

Type: LPC 2,5/20-STF-5,08

PCB connector, Lever Push-in connection



The figure shows an 10-position version

1 Main features



- | | | | |
|---------------------------|--------------------------|------------------------|---------------------|
| • No. of pos. | 20 | • Nominal current | 16 A |
| • Conductor cross section | 2.5 mm ² | • Nominal voltage | 320 V |
| • Color | green (6021) | • Connection direction | 0 ° |
| • Pitch | 5.08 mm | • Type of packaging | packed in cardboard |
| • Connection method | Lever Push-in connection | | |

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
- ✓ Screwable flange for superior mechanical stability
- ✓ Quick and convenient testing using integrated test option



Make sure you always use the latest documentation.

It can be downloaded at: phoenixcontact.net/product/1110649

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1110649 LPC 2,5/20-STF-5,08

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



1110649 LPC 2,5/20-STF-5,08**5 General Technical Data****5.1 item properties**

| | |
|--|--------------------------|
| Order No. | 1110649 |
| Type | LPC 2,5/20-STF-5,08 |
| Connector system | CLASSIC COMBICON |
| Product type | PCB connector |
| Type of contact | Female connector |
| Range of articles | LPC 2,5/...-ST-LR |
| Pitch | 5.08 mm |
| Number of positions | 20 |
| Number of levels | 1 |
| Connection method | Lever Push-in connection |
| Connection direction of the conductor to plug-in direction | 0 ° |

1110649 LPC 2,5/20-STF-5,08**6 Mounting****6.1 Flange mounting**

| | |
|-----------------|---------------|
| Type of locking | Screw locking |
| Mounting flange | Screw flange |
| Torque | 0.3 Nm |

1110649 LPC 2,5/20-STF-5,08**7 Conductor connection****7.1 Connection capacity**

| | |
|--|---|
| Nominal cross section | 2.5 mm ² |
| Conductor cross section, rigid | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross section, flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross section flexible, with ferrule without plastic sleeve | 0.25 mm ² ... 2.5 mm ² (Stripping length: 7 mm ... 12 mm) |
| Conductor cross section flexible, with ferrule with plastic sleeve | 0.25 mm ² ... 2.5 mm ² (Stripping length: 7 mm ... 12 mm) |
| 2 conductors with the same cross section flexible with TWIN ferrule and plastic sleeve | 0.5 mm ² ... 1 mm ² (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 |
|-----------------------------|-----------|

1110649 LPC 2,5/20-STF-5,08**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

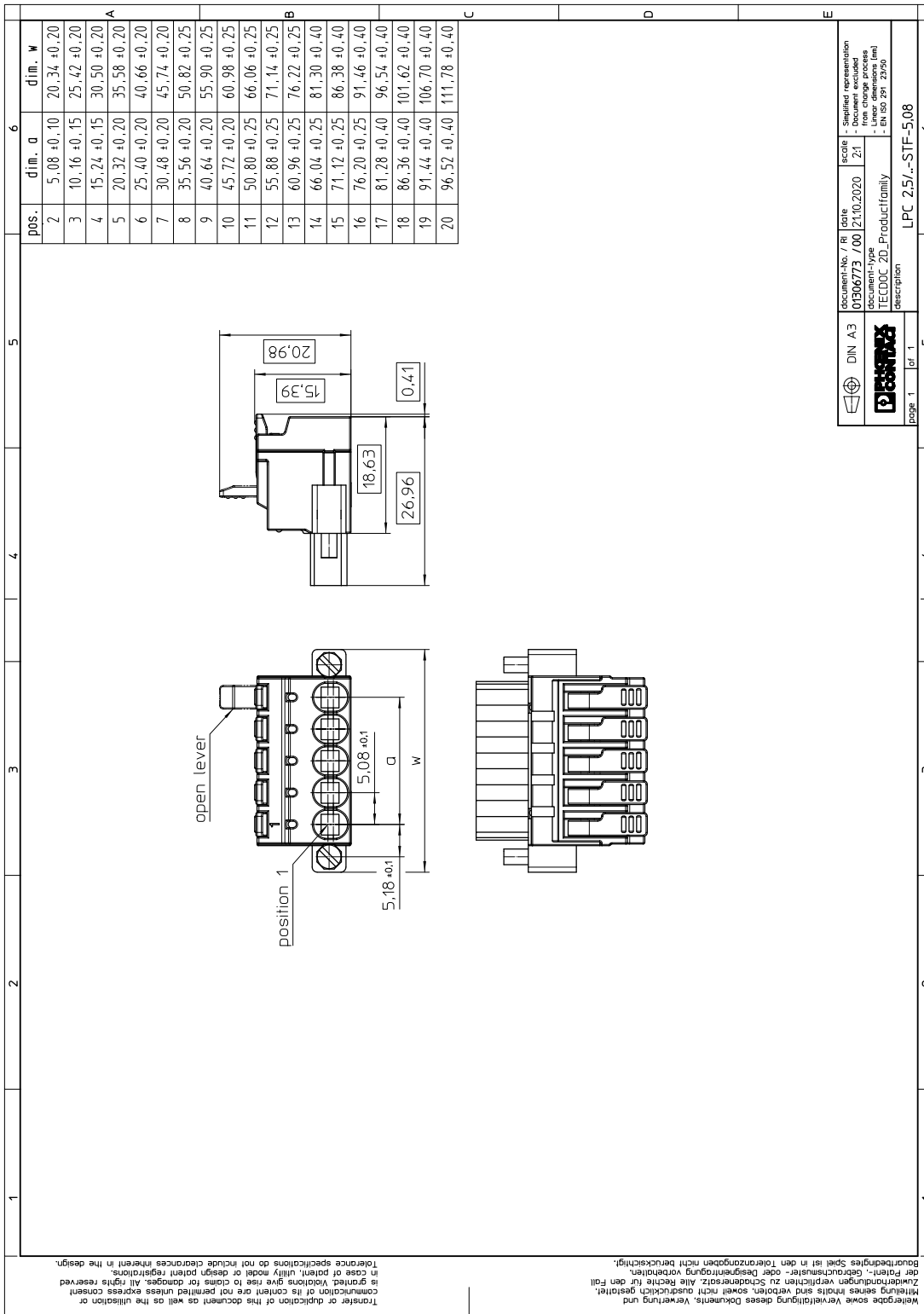
| | Housing | Actuation element |
|---|--------------|-------------------|
| Color | green (6021) | orange (2003) |
| Insulating material | PA | PA GF |
| Insulating material group | I | I |
| CTI according to IEC 60112 | 600 | 600 |
| Flammability rating according to UL 94 | V0 | V0 |
| Glow wire flammability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

1110649 LPC 2,5/20-STF-5,08**9 Dimensions****9.1 Dimensions for the product**

| | |
|--------------|-----------|
| Length | 27.37 mm |
| Width | 111.78 mm |
| Total height | 15.39 mm |

1110649 LPC 2,5/20-STF-5,08

10 Series drawing



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 document-type: TECDOC 2D_Productfamily
 description: LPC 2,5/20-STF-5,08
 scale: Simplified representation
 - from change process
 - Linear dimensions (mm)
 - EN ISO 291: 2010
 page 1 of 1

1110649 LPC 2,5/20-STF-5,08**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 | 25 |

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 mm ² ; Length: 7 mm Cross section: 0.34 mm ² ; Length: 7 mm Cross section: 0.5 mm ² ; Length: 8 mm ... 10 mm Cross section: 0.75 mm ² ; Length: 8 mm ... 10 mm Cross section: 1 mm ² ; Length: 8 mm ... 12 mm Cross section: 1.5 mm ² ; Length: 10 mm ... 12 mm Cross section: 2.5 mm ² ; 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 mm ² ; Length: 8 mm ... 10 mm Cross section: 0.34 mm ² ; Length: 8 mm ... 10 mm Cross section: 0.5 mm ² ; Length: 8 mm ... 10 mm Cross section: 0.75 mm ² ; Length: 10 mm ... 12 mm Cross section: 1 mm ² ; Length: 10 mm ... 12 mm Cross section: 1.5 mm ² ; Length: 10 mm ... 12 mm Cross section: 2.5 mm ² ; 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) |

1110649 LPC 2,5/20-STF-5,08**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

1110649 LPC 2,5/20-STF-5,08

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

1110649 LPC 2,5/20-STF-5,08**16 Insertion and withdrawal forces**

| Insertion and withdrawal force | |
|-------------------------------------|-------------|
| Specification | Test passed |
| No. of cycles | 25 |
| Insertion strength per pos. approx. | 8 N |
| Withdraw strength per pos. approx. | 6 N |

1110649 LPC 2,5/20-STF-5,08**17 Electrical tests**

| | |
|---|----------------------------|
| Rated current / conductor cross section | 16 A / 2.5 mm ² |
| Rated insulation voltage (III/2) | 320 V |
| Rated surge voltage (III/2) | 4 kV |
| Contact resistance | 2 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 mm ² ... 2.5 mm ² |
| Conductor cross section, rigid | 0.2 mm ² ... 2.5 mm ² |

17.3 Temperature cycles

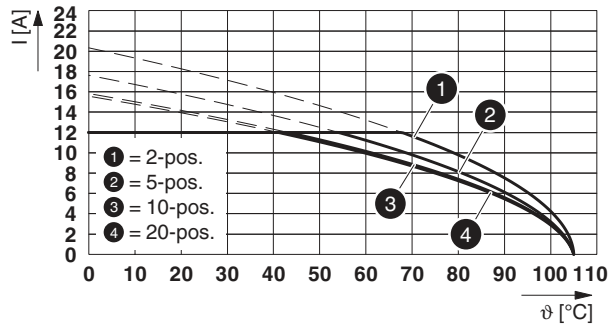
| | |
|--------------------------------------|--|
| Specification | IEC 60999-1:1999-11 |
| Result | Test passed |
| Voltage drop | Voltage drop (U) after the load ≤ 22.5 mV or 1.5 x U _{after 24 h} The small value is to be used. |
| Test current (minimum cross section) | 3 A AC |
| Test current (maximum cross section) | 16 A AC |
| Temperature cycles | 192 |
| Conductor cross section, flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross section, rigid | 0.2 mm ² ... 2.5 mm ² |

1110649 LPC 2,5/20-STF-5,08

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 mm ² |

Type: LPC 2,5/...-STF-5,08 with MSTBV 2,5/...-GF-5,08



1110649 LPC 2,5/20-STF-5,08**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/s ² (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 |
| | |

19.3 Shock test

| | |
|--------------------------------|-----------------------------------|
| Specification | IEC 60068-2-27:2008-02 |
| Result | Test passed |
| Pulse shape | Semi-sinusoidal |
| Peak acceleration | 200 m/s ² |
| Shock duration | 11 ms |
| Number of shocks per direction | 3 |
| Test directions | X-, Y- and Z-axis (pos. and neg.) |

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 |

1110649 LPC 2,5/20-STF-5,08**21 Commercial Data**

| | |
|--------------------|--|
| Order No. | 1110649 |
| Type | LPC 2,5/20-STF-5,08 |
| Pieces per package | 25 |
| Net weight | 2.22 g |
| GTIN | 4063151027841 |
| | 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 |
| Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip | 1205053 | SZS 0,6X3,5 |

1110649 LPC 2,5/20-STF-5,08

23 Combination tests

**LPC 2,5/...-ST-LR**

IEC 61984

Mechanical tests (A)

Insertion/withdrawal force per position

Polarization when inserted
Requirement >20 NContact holder in insert
Requirements >20 N**Durability tests (B)**Contact resistance R₁ 1st levelContact resistance R₁ 2nd level

Insertion/withdrawal cycles

Contact resistance R₂Rated impulse voltage at sea level
Voltage waveform ≥ (1.2/50 μs)Power-frequency withstand voltage
Voltage waveform ≥ (50/60 Hz)**Thermal tests (C)**

Tested number of positions

Tested conductor cross section

Test current

Upper limiting temperature
Requirements < 100°C**Climatic tests (D)**

Test sequence 1: low temperature storage

Test sequence 2: heat storage

Test sequence 3: noxious gas storage
(ISO 6988)Rated impulse voltage at sea level
Voltage waveform ≥ (1.2/50 μs)Power-frequency withstand voltage
Voltage waveform ≥ (50/60 Hz)**Environmental and endurance tests (E)**

Specification

Degree of protection

MSTBV 2,5/...-GF

IEC 61984

approx. 8 N / 6 N

Test passed

Test passed

2 mΩ

25

2.2 mΩ

4.8 kV

2.21 kV

20

2.5 mm²

12 A

Test passed

-40 °C/2 h

105 °C/168 h

0.2 dm³ SO₂ on 300 dm³/
40 °C/1 cycle

4.8 kV

2.21 kV

IEC 61984:2008-10

Finger safety with IP20
test finger