

# MKDSP 50/ 1-17,5-FL - PCB terminal block



1856168

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Printed circuit board terminal, nominal current: 192 A, rated voltage (III/2): 1000 V, nominal cross section: 70 mm<sup>2</sup>, number of potentials: 1, number of rows: 1, number of positions per row: 1, product range: MKDSP 50/..-FL, pitch: 17.5 mm, connection method: Screw connection with tension sleeve, screw head form: T30 Torx®, mounting: Wave soldering, conductor/PCB connection direction: 0 °, color: green, Pin layout: Linear pinning, Solder pin [P]: 4 mm, number of solder pins per potential: 4, 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
- Quick and convenient testing using integrated test option
- Mounting flanges reduce the mechanical strain on the soldering spots
- Integrated protective guide prevents incorrect insertion of the conductor underneath the tension sleeve

## Commercial data

Item number	1856168
Packing unit	10 pc
Minimum order quantity	10 pc
Sales key	AA16
Product key	AAPIAC
GTIN	4055626029016
Weight per piece (including packing)	45.42 g
Weight per piece (excluding packing)	41.8 g
Customs tariff number	85369010
Country of origin	CN

## Technical data

### Product properties

Product type	Printed circuit board terminal
Product family	MKDSP 50/...-FL
Product line	COMBICON Terminals XXL
Type	Standard
Number of positions	1
Pitch	17.5 mm
Number of connections	1
Number of rows	1
Number of potentials	1
Pin layout	Linear pinning
Solder pins per potential	4

### Electrical properties

#### Properties

Nominal current $I_N$	192 A
Nominal voltage $U_N$	1000 V
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	Standard
Nominal cross section	70 mm <sup>2</sup>

#### Conductor connection

Connection method	Screw connection with tension sleeve
Conductor cross-section rigid	1.5 mm <sup>2</sup> ... 70 mm <sup>2</sup>
Single-conductor/terminal point multi-stranded	1.5 mm <sup>2</sup> ... 70 mm <sup>2</sup>
Conductor cross-section flexible	1.5 mm <sup>2</sup> ... 70 mm <sup>2</sup>
Conductor cross-section AWG	16 ... 2/0
Conductor cross-section, flexible, with ferrule, without plastic sleeve	1.5 mm <sup>2</sup> ... 50 mm <sup>2</sup>
Conductor cross-section, flexible, with ferrule, with plastic sleeve	1.5 mm <sup>2</sup> ... 50 mm <sup>2</sup>
2 conductors with same cross section, rigid	1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>
2 conductors with the same cross section, stranded	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
2 conductors with same cross section, flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>

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2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve	1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>
Stripping length	20 mm
Drive form screw head	Torx® (T30)
Tightening torque	5.5 Nm

## Information on the aluminum conductor

Cross section / torque / form of conductor	Cable cross section:50 mm <sup>2</sup> ; Torque:5.5 Nm; Form of cable:sector-shaped, single-strand, class 1, $\alpha = 90^\circ$ (se)
Specification	DIN VDE 0276-603 (VDE 0276-603):2010-03
Note on conductor pretreatment	The following measures are required for durable and reliable contacting of the aluminum conductor: the stripped end of the aluminum conductor must be separated from the oxide layer using a blade, and immediately dipped in non-acid and non-alkali Vaseline. The pretreatment must be repeated when connecting the conductors anew.

## Mounting

Mounting type	Wave soldering
Pin layout	Linear pinning

## 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	Tin-plated
Metal surface terminal point (top layer)	Tin (4 $\mu$ m - 8 $\mu$ m Sn)
Metal surface soldering area (top layer)	Tin (4 $\mu$ m - 8 $\mu$ m Sn)

### 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

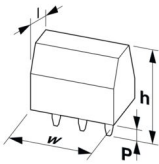
## Dimensions

# MKDSP 50/ 1-17,5-FL - PCB terminal block



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Dimensional drawing	
Pitch	17.5 mm
Width [w]	32.6 mm
Height [h]	59 mm
Length [l]	32 mm
Installed height	55 mm
Solder pin length [P]	4 mm
Pin dimensions	1.4 x 1.4 mm

## PCB design

Hole diameter	2.4 mm
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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	1.5 mm <sup>2</sup> / solid / > 40 N
	1.5 mm <sup>2</sup> / flexible / > 40 N
	70 mm <sup>2</sup> / stranded / > 285 N
	70 mm <sup>2</sup> / flexible / > 285 N
	50 mm <sup>2</sup> / flexible with ferrule / > 236 N
	1.5 mm <sup>2</sup> / flexible with ferrule / > 40 N

## Electrical tests

### Temperature-rise test

Specification	IEC 60947-7-4:2013-08
Requirement temperature-rise test	The sum of ambient temperature and temperature rise of the PCB terminal block shall not exceed the upper limiting temperature.

### Short-time withstand current

Specification	IEC 60947-7-4:2013-08
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### Insulation resistance

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

### Air clearances and creepage distances |

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Specification	IEC 60947-1:2007-06 + A1:2010-12
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

## 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)
Acceleration	5g (60.1 Hz ... 150 Hz)
Test duration per axis	2.5 h
Test directions	X-, Y- and Z-axis

### Glow-wire test

Specification	IEC 60695-2-10:2000-10
Temperature	850 °C
Time of exposure	5 s

### Aging

Specification	IEC 60947-7-4:2013-08
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### Ambient conditions

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

## Packaging specifications

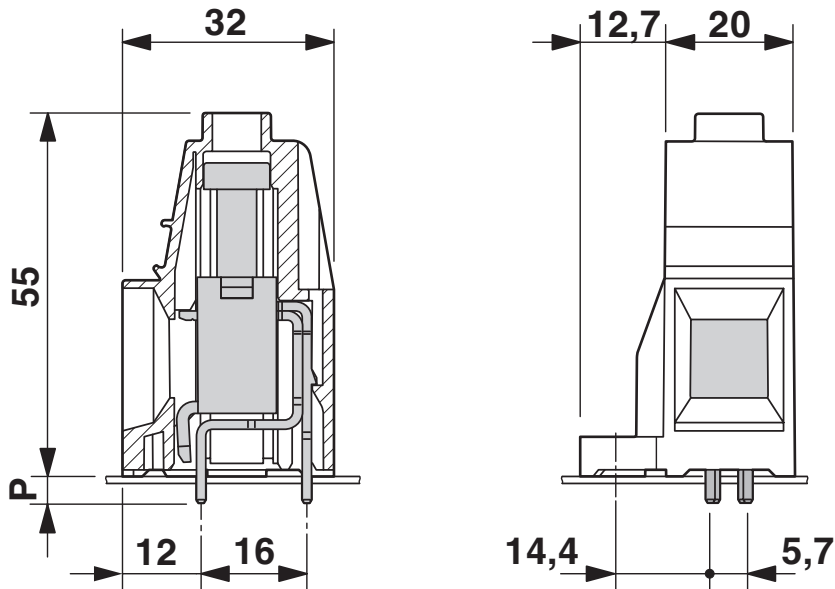
Type of packaging	packed in cardboard
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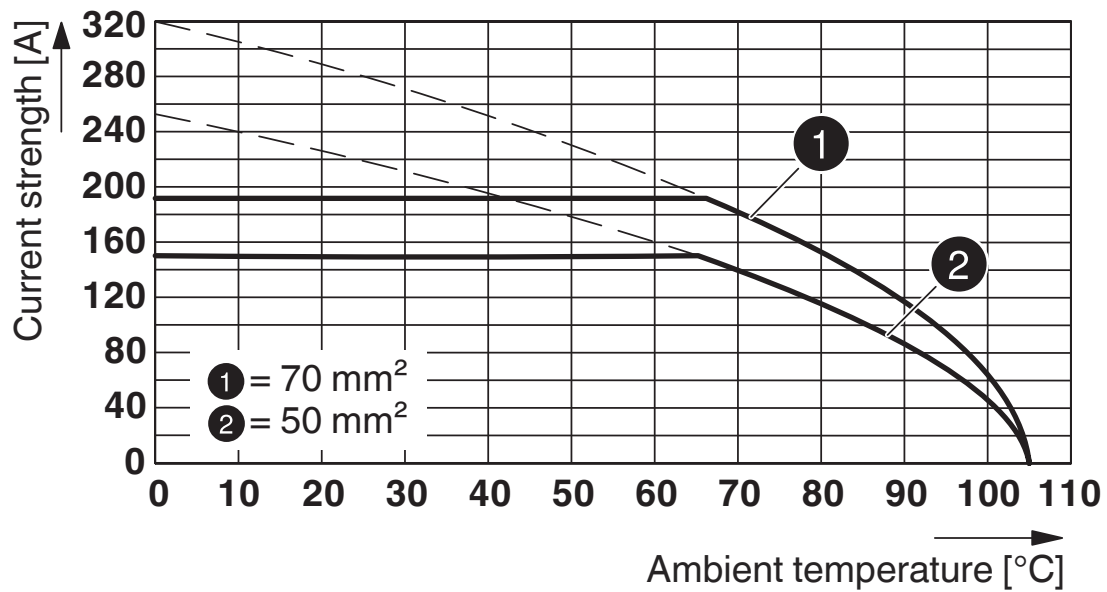
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## Drawings

Dimensional drawing



Diagram



Type: MKDSP 50/...-17,5(-F)(-FL)

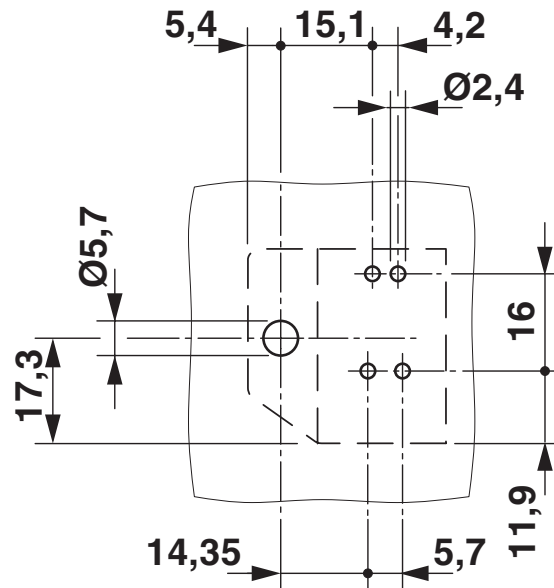
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Drilling plan/solder pad geometry



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1856168>

 <b>cULus Recognized</b> Approval ID: E60425-19770427				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
B	600 V	160 A	16 - 2/0	-
C	600 V	160 A	16 - 2/0	-

 <b>VDE approval of drawings</b> Approval ID: 40041859				
	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
keine	1000 V	192 A	-	1.5 - 70

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## Classifications

### ECLASS

ECLASS-13.0	27460101
ECLASS-15.0	27460101

### ETIM

ETIM 10.0	EC002643
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### UNSPSC

UNSPSC 21.0	39121400
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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### EF3.1 Climate Change

CO2e kg	0.53 kg CO2e
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