

# COMBICON power

## PCB terminal blocks and connectors for power electronics

### PCB terminal blocks

The high-performance PCB terminal blocks provide connection options for conductors with cross sections from 0.2 to 35 mm<sup>2</sup>. The use of a tension sleeve or a spring-cage makes connecting the conductor a convenient matter. Complex and costly special aids with ring cable lugs, up-front DIN rails or packages of modular terminal blocks can be thus dispensed with.

The particularly powerful screw PCB terminal block, MKDSP 25, is designed for currents up to 125 A and has unlimited UL approval up to 600 V or up to 1000 V in accordance with IEC/DIN VDE. The connection to the printed circuit board is established quickly and securely using the wave soldering method.

### Connectors

The performance spectrum of power connectors starts in the lower segment with the "High Current" HC series. Thanks to the highly conductive materials, the HC contact system achieves a current carrying capacity of 16 A. The conductor is connected using the proven screw connection method (tension sleeve principle), or alternatively using a spring-cage.

PC 4 is the best choice if you need currents of up to 20 A for the PCB. The POWER COMBICON classic has a convincing and compact design with a 7.62 mm pitch and UL approvals of up to 600 V. In addition to the standard versions, products are also available for rail mounting and panel feed-through.

PC 5, PC 6 and PC 16 are high-performance connectors for even larger conductor cross sections with enormous safety reserve. When connecting a 16 mm<sup>2</sup> conductor, the PC 16 contact system allows a current carrying capacity of 76 A. Power electronic components thus become universally pluggable and easy to service.

### General

#### MKDS 5 series

PCB terminal blocks with a screw connection up to 6 mm<sup>2</sup>

#### MKDS 10 series

PCB terminal blocks with a screw connection up to 16 mm<sup>2</sup>

#### MKDS 25 series

PCB terminal blocks with a screw connection up to 35 mm<sup>2</sup>

#### KDS 10 series

Feed-through PCB terminal blocks with a screw connection up to 16 mm<sup>2</sup>

#### FRONT 4 series

Front PCB terminal blocks with a screw connection up to 6 mm<sup>2</sup>

#### SPT 5 series

Front PCB terminal blocks with a push-in spring-cage connection up to 6 mm<sup>2</sup>

#### ZFKDS 4 series

PCB terminal blocks with a spring-cage connection up to 6 mm<sup>2</sup>

#### ZFKDS 10 series

PCB terminal blocks with a spring-cage connection up to 16 mm<sup>2</sup>

#### HC series

Connectors with a screw and spring-cage connection up to 2.5 mm<sup>2</sup>

#### PC 4 series

Connectors with a screw connection up to 4 mm<sup>2</sup>

#### PC 5 series

Connectors with a screw and spring-cage connection up to 6 mm<sup>2</sup>

#### PC 6 series

Connectors with a screw connection up to 6 mm<sup>2</sup>

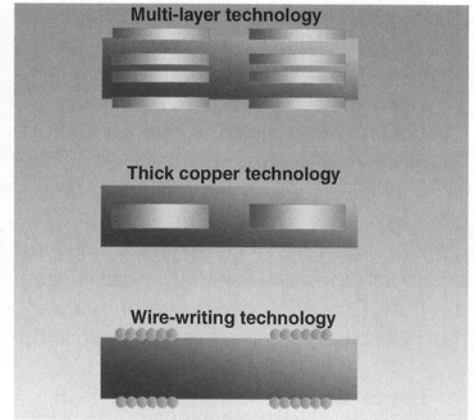
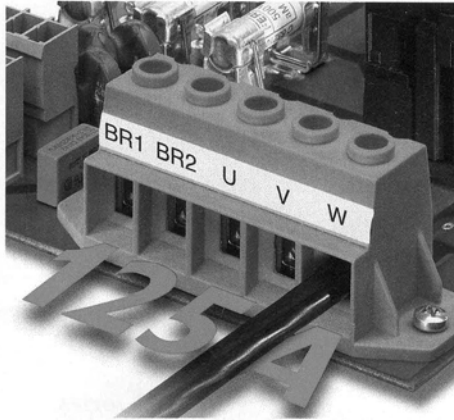
#### PC 16 series

Connectors with a screw and spring-cage connection up to 16 mm<sup>2</sup>

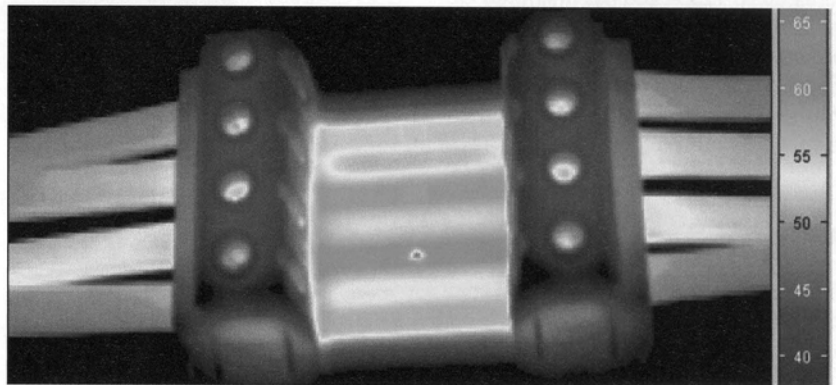
### 125A through the printed circuit board? It works.

Connectors of the COMBICON power product range provide a current carrying capacity of up to 125 A together with high-current PCBs.

Different PCB production technologies provide new options for the device design. The required functions and modules can thus be provided in one single printed circuit board. The expensive additional device wiring is therefore not required any longer. Contact us if you need more information and information material on high-current PCBs.



PCB production technologies



Thermographic recording of a test application with 125 A

### One connection for every application

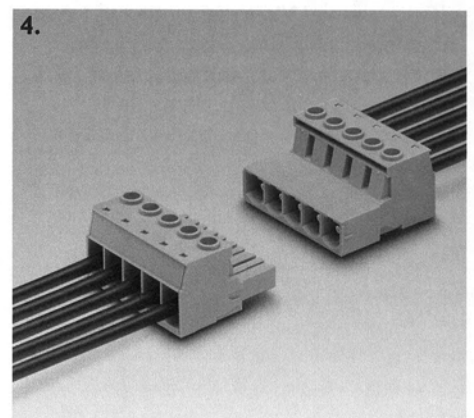
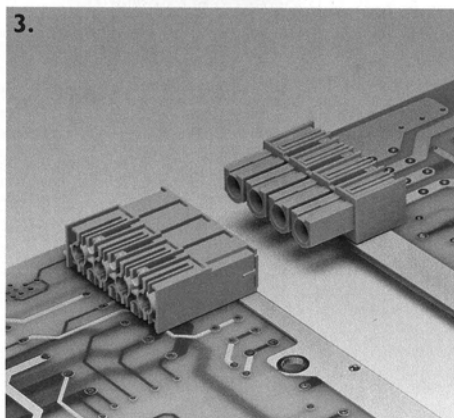
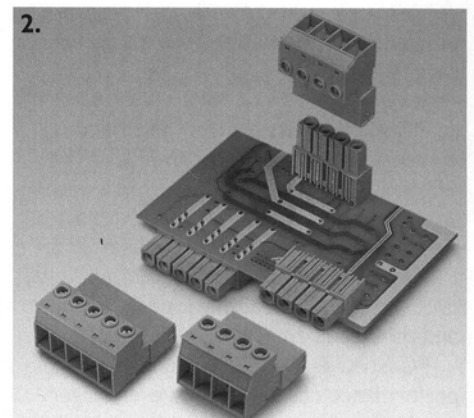
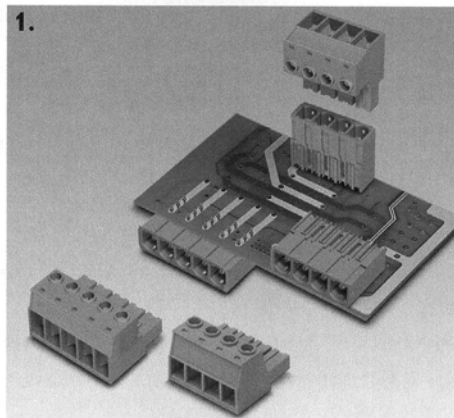
The wide variety of products in the COMBICON power range makes it possible to find a solution for almost every application.

1. The COMBICON plug-in system facilitates quick and easy replacement of printed circuit boards or device modules when servicing.

2. Inverted connectors and headers of the COMBICON power product range provide the option of touch-proof printed circuit boards and device outputs.

3. By using the inverted versions, PCB-PCB connections are possible. They allow a previously unknown flexibility in device design.

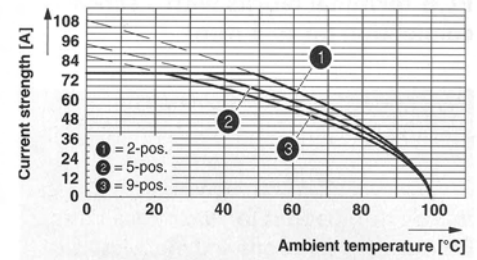
4. Furthermore, the modular system enables so-called overhung connections (cable-cable). The connections are vibration-resistant (even possible as a shielded connection) with the use of STF (SH) and STGF (SH) versions.



### Current carrying capacity of connectors and PCB terminal blocks

Base curves and derating diagrams are provided in the catalog to determine the permitted current carrying capacity of the COMBICON power products. The maximum permitted current strength for a particular application can be read depending on the ambient temperature. The number of positions and the connection cross section of a conductor must be taken into account while doing so.

For example, the maximum current carrying capacity is 76 A for a 5-pos. connector with a connection cross section of 16 mm<sup>2</sup> and an ambient temperature of 34°C. Please also refer to the laboratory data sheets of the corresponding product. Further information on this is listed on page 582.

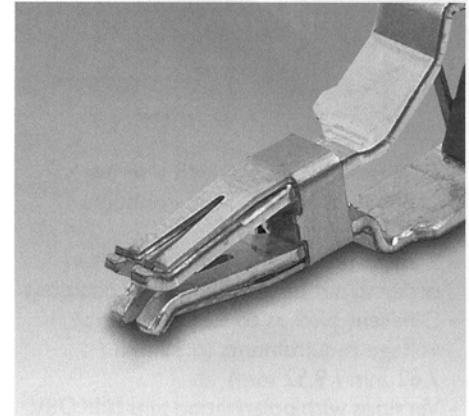


Connected conductor cross section = 16 mm<sup>2</sup>  
Reduction factor = 0.8  
Number of positions = see diagram

### Extra safety for high power

All connectors of the COMBICON power product range have an integrated double steel spring. This double spring provides additional safety in case of power and temperature fluctuations. Contact corrosion is prevented since the double steel spring exerts additional pressure on

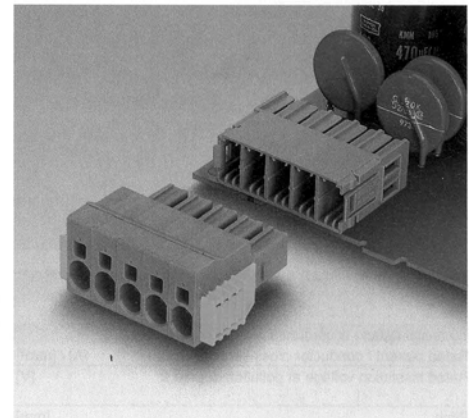
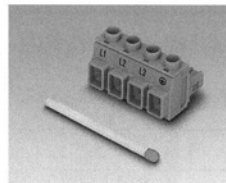
the contact. This results in the long-term stability of the contact resistance.



### UL approvals for high-current applications

A UL approval is imperative for the international market. Therefore, the COMBICON power products offer a 600 V UL approval for each application even in the case of the smallest of dimensions. Product and device approvals must be distinguished in this case. The

COMBICON power flyer contains the approvals applicable for the products and applications in detail.



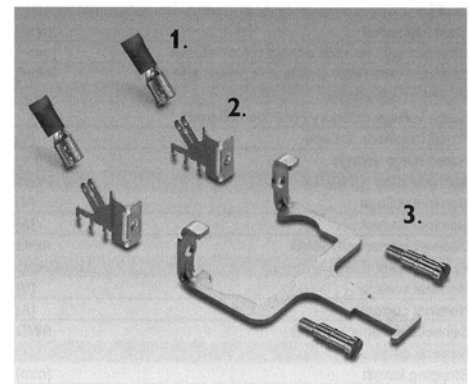
### Connector versions with shield connection/strain relief

The shielded connector versions (STF SH) of the COMBICON power product ranges PC 4, PC 5, PC 6 and PC 16 provide a professional connection of the braided shield to avoid electric interferences and to meet EMC requirements.

**1. Slip-on connection:** to reach the next reference point by the shortest possible route using a cable.

**2. PCB SHIELD:** If the housing panel or front plate is not conductive, it is possible to route the shielding function directly to the PCB through the flange screw for the POWER COMBICON PCB SHIELD.

**3. Vibration-resistant connection:** the screw integrated in the connector flange guarantees a perfect connection between the shroud and the metal front.



Shield connection/strain relief of the PC 4, PC 5, PC 6 and PC 16 series