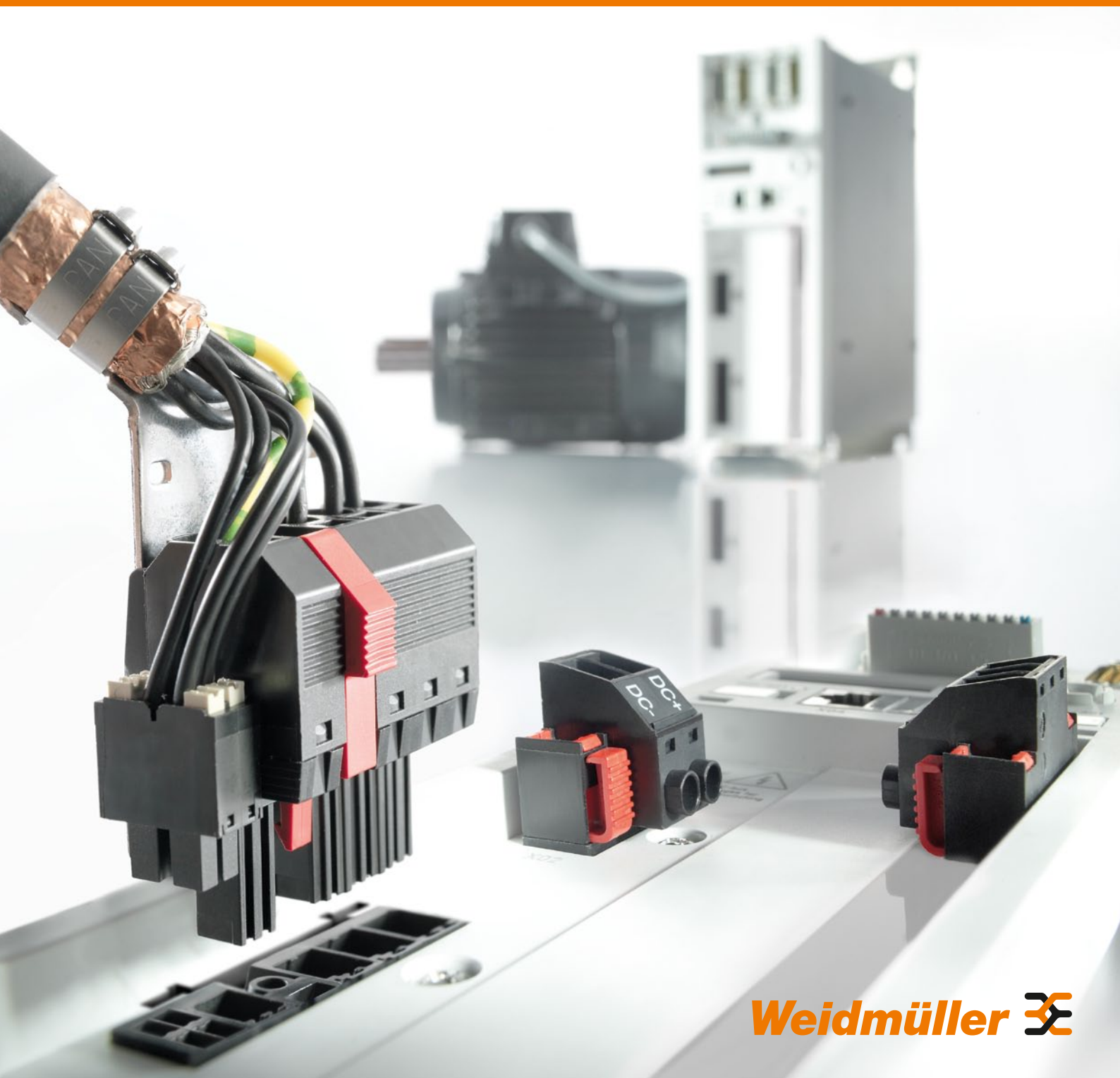


# Your requirements for drive controllers and regulators are the driving force behind our connection technology

OMNIMATE® - Device Connectivity



## Perfect-fit connectivity solutions for drive controllers and regulators

Semiconductor technology for power electronics has progressed at a steady pace in the last few years enabling more complex drive controllers to be manufactured, e.g. for rotational speed controllers or for precise positioning systems. So it's more important than ever to take advantage of connection technology that you can trust now and in the future.

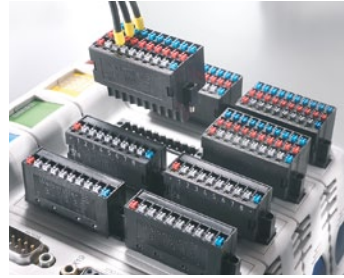
We specialise in industrial connectivity; our connectivity solutions for the power electronics sector are backed by our comprehensive, real-world expertise. We understand the extremely demanding requirements for the servo-controllers and frequency inverters that are common in this business. Voltages of 400 to 690 V (according to IEC) and 600 V (according to UL), and up to 1000 V in DC circuits, are not uncommon for such equipment. That is why you require high current-carrying capacity implemented in the most compact space possible. We can provide superior connectivity solutions to meet these challenging requirements.

You will be impressed with the vast range of our OMNIMATE product line. Our OMNIMATE Signal, OMNIMATE Power, OMNIMATE Housing and FieldPower® series offer you a choice range of products and the ideal connectivity solution for your application. We also support you with free 3D CAD files, which can be downloaded from the Weidmüller Online Configurator.

In addition our unique, convenient and quick 72-hour OMNIMATE sample service guarantees your design project stays on schedule.

Let's connect.

## OMNIMATE – device connectivity and electronics housings



**OMNIMATE Signal** includes PCB terminals and PCB plug-in connectors for automation and systems engineering equipment, as well as sensor-actuator interfaces and power supplies.



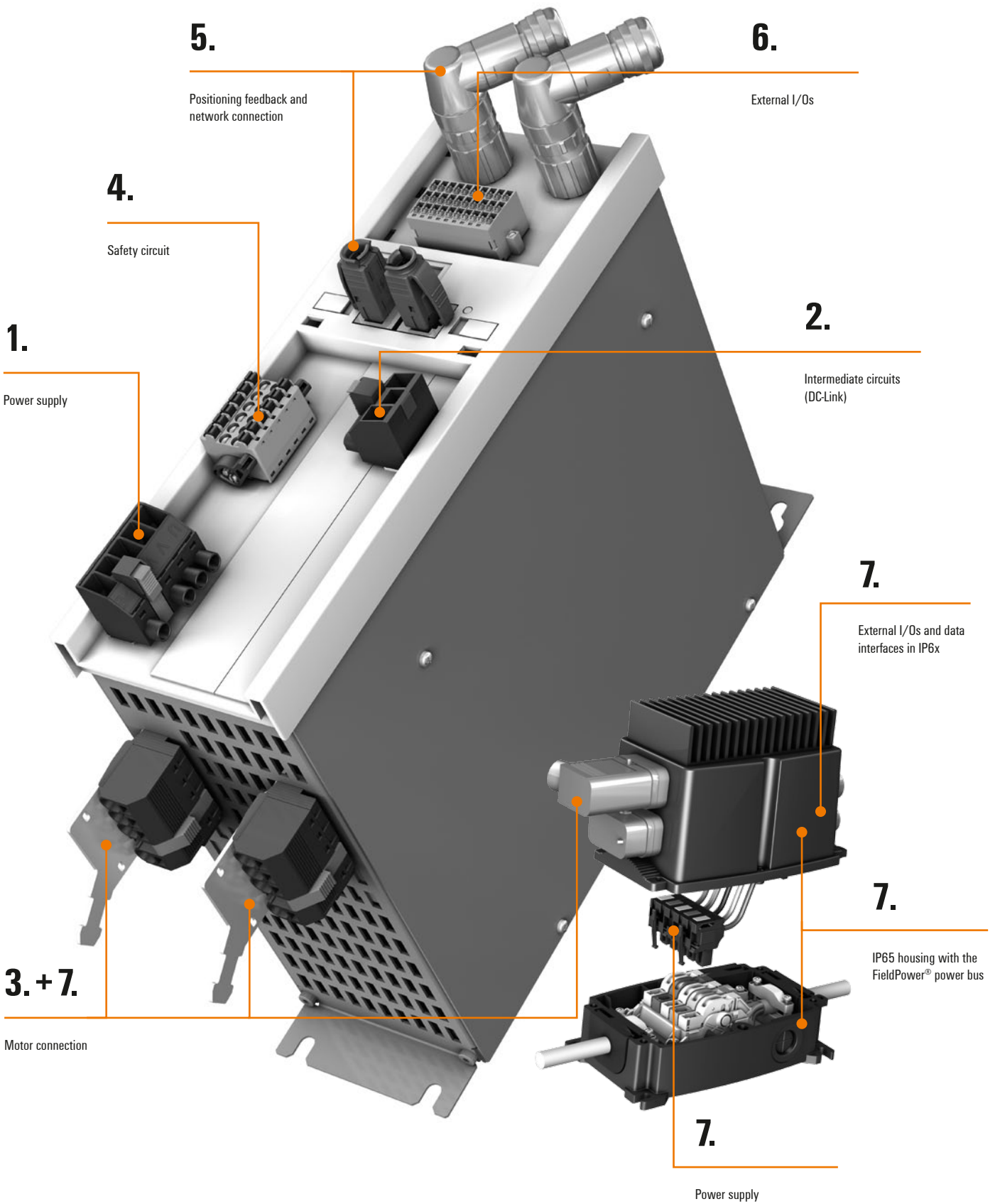
**OMNIMATE Power** includes PCB terminals, PCB plug-in connectors and feedthrough terminals for use in power electronics – particularly in inverters, frequency converters, servo drives, heavy-duty power supplies and motor starters.



**OMNIMATE Housing** – The perfect enclosures for industrial electronics, for mounting on 35mm top-hat rails (DIN rails) in the electrical cabinet. Used for controller, signal conversion and machine safety applications.



**OMNIMATE Services** – Take advantage of our service and support to optimise your design-in process – all the way from the specification stage to the component integration.



# 1.

## Power supply

Reliable device connections are essential to meet the maximum power and voltage requirements found in power electronics applications. Our OMNIMATE Power series of terminals and connectors provide you with many unique features while ensuring maximum safety and reliability. The design of the mating profiles makes it impossible to accidentally plug the wrong connectors together. The connectors can also make use of additional attachment mechanisms such as latches, interlocks or screws. You can select the spring ("PUSH IN") or screw connection for the wire, depending on your application requirements. To further support proper on-site wiring, we can print all of our OMNIMATE Power products with customised wire assignment labelling.

OMNIMATE Power connectors provide plug-in connectivity solutions for power electronics applications and state-of-the-art drive systems. The range sets a new standard – with increased safety and innovative details such as the pluggable shield, integrated signal contacts and one-handed operation. The standard connectors and IT-mains connectors are suitable for wire cross-sections of 2.5 mm<sup>2</sup>, 6 mm<sup>2</sup> and 16 mm<sup>2</sup>.

OMNIMATE Power PCB terminals provide a sturdy, direct-connect solution to deal with extreme current and voltage requirements for many power electronics applications: such as solar inverters, frequency converters, servo-controllers and power supplies. They come in 10.16 mm, 12.7 mm and 15.0 mm pitches, and can connect wires up to 50 mm<sup>2</sup>.

Finally, the OMNIMATE Power feedthrough terminals are a universal solution for feeding currents of varying magnitudes through device panels. They are suited for connecting wires from 4 mm<sup>2</sup> to 95 mm<sup>2</sup>.



High-performance connectors and terminals for circuit boards; terminals for feeding through housing walls

# 2.

## Intermediate circuits (DC-Link)

A touch-protection shield on both sides of the plug-in connection helps to minimise the risk from high inverse voltages. This means we are in full compliance with device approval guidelines as laid out in IEC 68100-5-1.

The inverted BLL or BVL female headers, when used together with the correct SLF/SLZ or SVF/SVZ male plugs, provide 3 mm of touch protection on both sides of the unplugged connection.

More standards compliance, less compromise: OMNIMATE Power for IT power systems. The features built into these connectors simplify your design-in and approval processes and ultimately make your operations more reliable.

For non-pluggable connectivity solutions, we recommend PCB terminals in 10.16 mm, 12.7 mm and 15.0 mm pitches, for connecting wires up to 25 mm<sup>2</sup>, or device feedthrough terminals for 4 mm<sup>2</sup> to 50 mm<sup>2</sup>.

When working with high voltages, the spacing between poles for the PCB terminals and device feedthrough terminals can be widened.



Device feedthrough terminals for direct connections, PCB terminals, connectors carrying high voltages safely

### 3. Motor connections

This interface typically requires connections for the motor voltage, internal temperature sensor and possibly the mechanical brakes. Depending on the application, a connection to an encoder or resolver may also be required.

Our hybrid motor connector needs only one plugging operation to simultaneously connect power, signals and cable shielding. This helps you to save space on the circuit board and on the housing's exterior. The one-handed, auto-interlock mechanism speeds up your installation and maintenance procedures. It is easy to handle and interlocks automatically – even in hard to reach installation positions.

We are currently the only manufacturer to provide special PCB connectors for devices connected to IT-type power grids.

PCB terminal blocks (in 10.16 mm, 12.7 mm and 15.0 mm pitches with wire connections up to 50 mm<sup>2</sup>) offer non-pluggable connectivity solutions. For panel feedthrough bushings, we recommend using device feedthrough terminals with 4 mm<sup>2</sup> to 95 mm<sup>2</sup> wire connections.

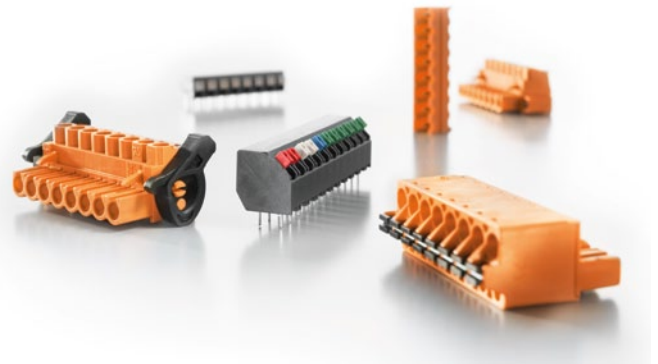


Convenient and standardised motor connections: hybrid motor plugs, soldered feedthrough terminals and PCB terminals blocks

### 4. Safety circuit

Safety switching devices (such as emergency-stop switches, safety light curtains and door switches) communicate closely with your drive controllers. They protect man and machine: ensuring that connected drives can be stopped immediately when required.

The BLF and BLZ OMNIMATE Signal connectors, in 5.08 mm pitch and with either screw or "PUSH IN" wire connections, ensure reliable connections for signals. The LM, LS and LSF PCB terminals, in 5.08 pitch, provide a non-pluggable solution.



PCB terminals and connectors, in 5.08 pitch, with "PUSH IN" or screw wire connections

## 5. Positioning feedback and network connections

Industrial-quality data connections are essential for providing reliable data transmissions. Our Industrial Ethernet components feature a much higher level of quality and reliability than what you would need for a conventional office PC. Weidmüller's product line includes IP67 solutions for network connections and positioning feedback.

We recommend using our M8, M12, M16 and M23 connectors with IP67 protection for positioning feedback and encoder connections. Over moulded cable assemblies are also available as an alternative.

We also offer a variety of RJ45 connectors with crimp or IDC wire connections, in accordance with Cat. 6A/Class EA and in protection classes ranging from IP20 to IP67, for all your network connectivity needs.



Fast communications delivered by industrial-strength, mechanically protected RJ45 connections and M23 plugs

## 6. External I/Os

Your servo-amplifiers require input interfaces for home switches, limit switches, etc. They also require output interfaces for any solenoid valves, conveyor controllers and a foreign machine interface (FMI).

The connection voltage depends on the application and lies between 12 and 24 VDC or up to 240 VAC. Pluggable connectors are optionally available with a screw flange or release latch to ensure an even stronger attachment. The connectors can be printed on so that the connections are clearly labelled and cannot be miss-mated.

For SMD-assembled circuit boards, the wire connections are available in reflow-compatible SMD or SMT variants.

The BL-I/O is the smallest plug-in solution available in 3.5 mm pitch that features an integrated signal display and a built-in cross-connection for supplying power to any connected sensors and actuators. They are the perfect choice for I/Os from 10 to 30 V. There are other pluggable versions, for pitches up to 5.08 mm, which can be combined on the circuit board with the reflow-compatible SL-SMT male header when needed.

The LSF PCB terminals, available in pitches from 3.5 mm to 7.62 mm, can be used in both wave soldering and reflow soldering processes without difficulty. The LM 3.5, LM 5.00, LM 5.08 and the LS 5.08 can be used for circuit boards in wave soldering processes.



Solutions with "PUSH IN" provide the most compact installation density for I/Os: in single row, triple row and double row

## 7. IP65 modules

Decentralisation of Power Electronics Modules assist with the simplification and acceleration of plant planning and maintenance projects saving time and money. The prerequisites for these modules are a rugged housing and high protection degrees. It is crucial that the connection system also supports a simple pre-installation method, fast initial commissioning and convenient servicing.

FieldPower® Control housings are built from polycarbonate that is extremely stable when exposed to flame. They are perfect for use as enclosures for electronics, or with switching and protective equipment.

The power supply has an integrated power bus; it can be installed quickly and smoothly using conventional round cables. The cables do not need to be cut or specially prepared for the connection. Hinged seals allow the plug wires to be inserted quickly. The sensors, actuators and data bus are best connected using M12 or RJ45 connectors. IP65 connectors (in accordance with ISO 23570) are available for the power outlet. They can be used with unshielded or shielded motor cables.



FieldPower® housing solution, plug-in power bus, IP65 FieldPower motor cable, M12 connecting cables

## Looking for more detailed information?

Enter one of the search terms below into our online catalogue, at <http://catalog.weidmueller.com>

### 1. Power supply

OMNIMATE Power connectors  
**BLZ 7.62HP, BVZ 7.62HP, BUZ 10.16HP**  
**BLZ 7.62IT, BVZ 7.62IT, BUZ 10.16IT**  
**BLF 7.62HP, BVF 7.62HP**

OMNIMATE Power PCB terminals  
**LU 10.16, LUP 10.16, LX 15.0, LXXX 15.0**

OMNIMATE Power Device feedthrough terminals  
**WGK (4 mm<sup>2</sup> – 95 mm<sup>2</sup>), VWGK**

### 2. Intermediate circuit

OMNIMATE Power connectors  
**SLF 7.62HP, SVF 7.62HP, BLZ 7.62IT,**  
**BVZ 7.62IT, BUZ 10.16IT**

OMNIMATE Power PCB terminals  
**LU 10.16, LUP 10.16, LX 15.0**

OMNIMATE Power device feedthrough terminals  
**WGK (4 mm<sup>2</sup> – 50 mm<sup>2</sup>), VWGK**

### 3. Motor connections

OMNIMATE Power connectors  
**BVF/BCF/F, BVF7.62HP SH (shield)**  
**BLZ 7.62IT, BVZ 7.62IT, BUZ 10.16IT**  
**BLZ 7.62HP, BLF 7.62HP, BVF 7.62HP**  
**BUZ 10.16HP**

OMNIMATE Power PCB terminals  
**LU 10.16, LUP 10.16, LX 15.0, LXXX 15.0**

OMNIMATE Power device feedthrough terminals  
**WGK (4 mm<sup>2</sup> – 95 mm<sup>2</sup>), VWGK**

### 4. Safety circuit

OMNIMATE Signal connectors  
**BLZP 5.08, BLF 5.08, BLDF5.08**

OMNIMATE Signal PCB terminals  
**LSF-SMT 5.08, LM 5.08, LS 5.08**

### 5. Positioning feedback

**SAIBWM6/14 M23 6P**  
**IE-PS-RJ45-FH-BK, IE-PS-RJ45-TH-BK,**  
**IE-PS-V04P-RJ45-TH-BP**

### 6. External I/Os

OMNIMATE Signal connectors  
**BL-I/O**  
**BL 3.5 LR, B2L 3.50, BCZ 3.81, BCF 3.81**  
**BLZP 5.08, BLF 5.08, BLDF5.08**

OMNIMATE Signal PCB terminals  
**LSF-SMT 3.5 (3.81), (5.08) LM 3.5, LM 5.08**

### 7. IP65 housing

FieldPower® Control modules  
**PT6**

Power supply  
FieldPower® connectors  
**PTS 4**

**Motor connection cable**  
FieldPower® motor cables  
**FPL**  
**HDC HQ**

**External I/Os**  
M12 connections  
**SAIL-M12, SAIE-M12**

**Data interface**  
RJ45 connectors  
**IE-BS-V04, IE-BSS-V14, IE-BSC-V14,**  
**IE-PS-V04, IE-PS-V14**

## **Weidmüller – Partner in Industrial Connectivity.**

As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Industrial Connectivity.

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