

You develop energy efficient electronics
We support you with innovative connectivity solutions

Device connectivity for heating electronics

Find your
connection solutions
with the AppGuide:
[www.weidmueller.com/
appguide](http://www.weidmueller.com/appguide)



Weidmüller 

Secure connectivity for energy efficient heating electronics

Whether for homes or offices, in commerce, construction trades or industry, the field of heat generation is becoming ever more varied and complex. As a result all modern heat generation systems must be equipped with electronic controls to ensure that energy is used economically and that efficiency is continuously optimised based on data feedback. This applies for conventional oil- or gas-fired boilers and for solid-fuel boilers that are fired by wood, wood chips or pellets, as well as for most industrial systems in which, for example, coal or even refuse is used as fuel. The sheer range of options make it possible to select more economical, more environment friendly and more individual solutions.

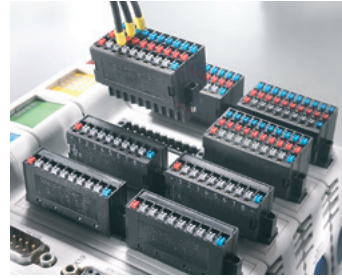
On the other hand, the manufacturers of heat generation systems and of the intelligent electronics for such systems are confronted with increasingly complex challenges. One of the key decisions is the selection of a suitable plug-in connection. This should provide the highest possible degree of safety combined with practical application functions. The latter including coding elements, options for colour coding or print labelling of connections and reliable solutions for secure interlocking and screw connections.

Plug-in connectors for actuators must guarantee touch safety, support a conductor cross-section of at least 1.5 mm² and must be compatible with conventional tools for service work. Another consideration is that the male connectors on the board should be made of a reflow-capable insulation material (SMT components) to make the soldering process as cost-effective as possible.

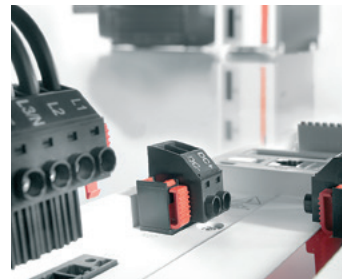
Let's connect.

Your ideas need the right connections

Ours are simply brilliant



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



OMNIMATE® Power –
PCB terminals, PCB plug-in connectors and feed-through terminals for use in power electronics such as inverters, frequency converters, servo drives, heavy-duty power supplies and motor starters



OMNIMATE® Housing –
Perfectly packed for industrial electronics, for mounting on 35 mm top-hat rails (DIN rails) inside the electrical cabinet for controller, signal conversion and machine safety applications.



OMNIMATE® Services –
Take advantage of our global 72-hour sample service free-of-charge in our online catalogue or at www.sample-service.com. For the best design-in-processes – from the specification stage through to component integration.

1. Power inputs

Maximum performance and security

The connection components must comply with the requirements for the corresponding voltage IEC and UL classes so that the heating systems can be used worldwide.

The OMNIMATE Power plug-in connectors provide maximum performance for your boards, combining unique reliability with maximum integrability and economy. They are therefore the compact and efficient solution for UL-600V applications in the lower power range up to 12 kVA. Further specifications: 29 A at 400 V (IEC), 20 A at 600 V (UL), single compartment mating profile, terminal range 0.08–4 mm²/AWG 28–12.

OMNIMATE plug-in connectors meet the requirements for 600 V as per UL 508 / UL 840 and the increased requirements for touch-safe protection as per IEC 68100-5-1, thereby making it easier to obtain device approval. With their compact geometries, the components are ideal for multi-stage device series, because they effectively reduce installation sizes and costs in the high-volume lower power range – without compromising approvability!

Unique: Our OMNIMATE Product Assistants help you to rapidly and conveniently select, customise and order PCB terminal blocks, plug-in connectors and electronics housings in accordance with your own component specifications and the requirements for your application.



PCB terminal blocks, plug-in connectors and device through-terminals for convenient and standard-compliant connection

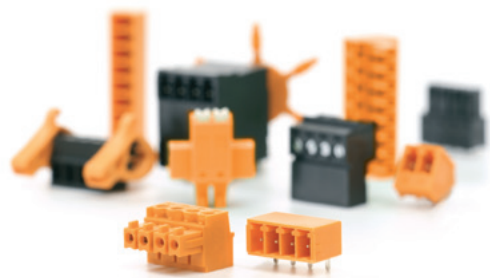
2. Sensor inputs

Secure and reliable signal transmission

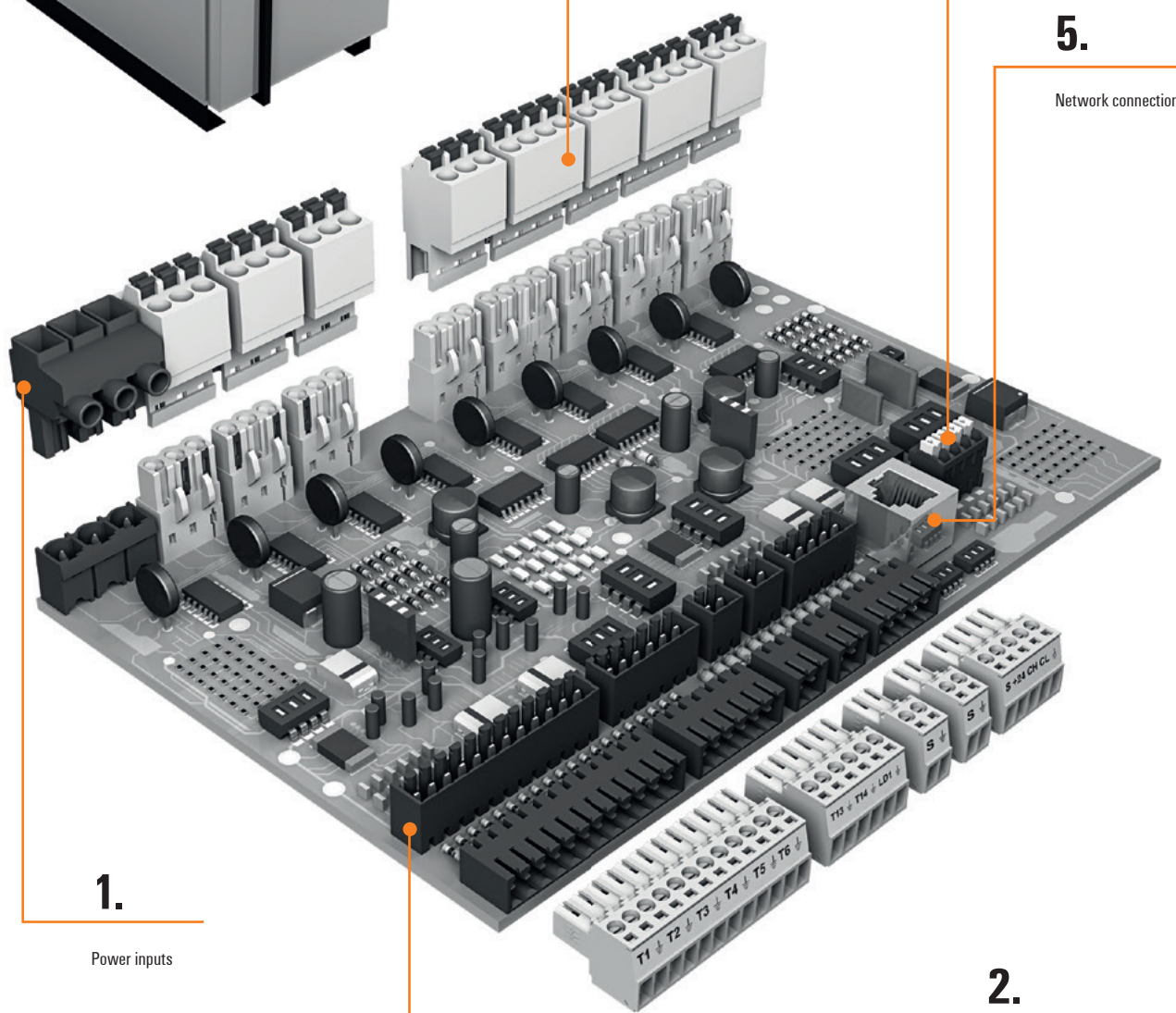
External and other sensors measure the temperature and pass their data on in digital or analogue form to the signal converter of the heating control system. The control system receives the sensor signals (e. g. external, boiler, flue gas, flow and room sensors), compares them with the set values and then issue the appropriate control commands. Secure and reliable transmission of signals is decisive here.

Weidmüller has redefined the performance of sensor inputs in the pitch sizes 3.50 mm (0.138") and 3.81 mm (0.15"). New standards have been set with a 17.5 A current-carrying capacity, reliable transmission at ambient temperatures up to 65 °C and our extensive product portfolio.

In addition to a current-carrying capacity that is twice that of conventional products, OMNIMATE Signal plug-in connectors offer much more. For example, they can be used in an extended range of applications. The OMNIMATE Signal plug-in connector with a pitch size of up to 3.81 mm supports inverted, touch-safe outputs and board-to-board and wire-to-wire connections. Yet another advantage is the high component density, as very low profiles can be achieved with the innovative Weidmüller "PUSH IN" connection technology. What's more, OMNIMATE signal plug-in connectors are suitable for colour coding and printing. Sensors and connections can thus be optimally labelled, making service work much safer.



OMNIMATE signal PCB connects in 3mm pitch size with a large number of important product characteristics



1.

Power inputs

4.

Heating outputs

3.

Remote signal inputs

5.

Network connection

2.

Sensor inputs

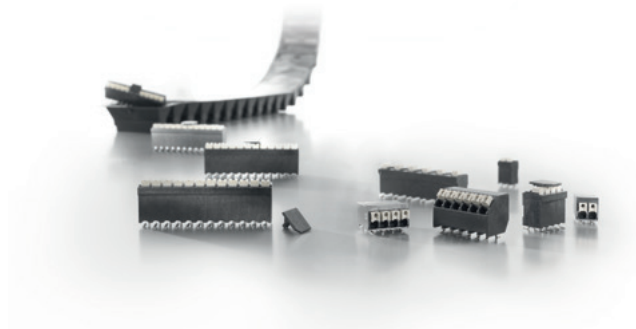
3. Remote signal inputs

Intuitive operation in confined spaces

Remote signal inputs enable the connection of external switch contacts. These switch contacts can be used, for example, to protect underfloor heating systems from excessive heating water temperatures. Other possible applications are peak/offpeak switches to maximise economy, locking time switches for heat pumps or load-shedding circuits to prevent overheating.

OMNIMATE signal PCB terminals with "PUSH IN" spring connections are especially suitable for remote signal inputs. They make it possible to easily connect and disconnect even solid cables or conductors with ferrules without the need for tools. Operation is completely intuitive in both cases and therefore especially straightforward and safe. Furthermore, potentials and contact points can be marked clearly by coloured push buttons. To facilitate their use even in confined spaces, versions with a conduct outlet turned through 180 degrees are available.

With the new LSF-SMD family, we meet demands for fully-automatic PCB surface mount installation using the SMD soldering procedure. This can reduce assembly costs by around 30 percent. Safety and reliability are significantly increased at the same time: two soldering pins per pole ensure a high degree of mechanical stability in accordance with IPC-A-610 class 2. Furthermore, the use of high-temperature-resistant, deformation-free LCP insulation with moisture level MSL 1 guarantees high form stability and hence coplanarity for the reflow soldering without previous drying phase. PCB terminal blocks of the LSF-SMD family are vibration- and shock-tested in accordance with IEC 61373.



OMNIMATE Signal LSF-SMD PCB terminals with spring connection using "PUSH IN" direct insertion technology

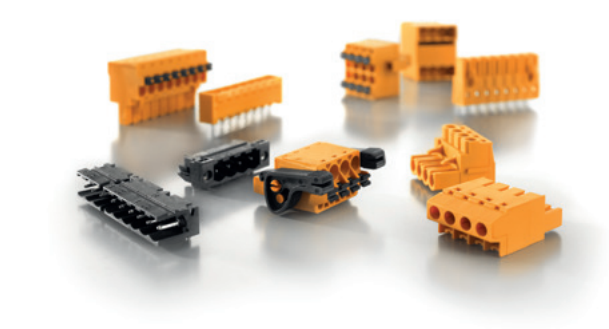
4. Heating outputs

Reliable even at high temperatures

The pump and furnace form the heart of a conventional liquid fuel-fired heating system. The oil must be pumped reliably and securely from the oil tank to the furnace. Required actuators, such as pumps, positioning drives, valves or furnaces, implement the control commands in one function, thus activating burners or pumps or opening actuators. High performance, totally reliable electronics are required to control these functions.

In many applications such as power electronics or motor outputs, increasing amounts of power are transmitted directly to the PCB. The plug-in connectors used in such applications must have additional load capacity even at higher ambient temperatures in order to reliably withstand the high current flows.

We address the demand for increased current carrying capacities with the standard "High Current (HC) Update" for our plug-in connectors. In combination with suitable HC male headers for the wave or SMT soldering, we achieve current values that are well above the market average. This applies both to our proven "PUSH IN" connection and to our conventional screw connectors. Our OMNIMATE Signal HC plug-in connectors are optimised for voltages from 24 V to 240 V and a medium connection density. They accommodate connection cross-sections from 1.5 mm² to 4 mm² and are suitable, in accordance with UL 1059, for nominal currents up to 16 A and more. A choice of conductor outlet orientations make their use in confined spaces possible and no special tools are required for installation. All plug-in connectors are finger-safe and can be easily colour coded or printed for ease of identification.



OMNIMATE Signal HC plug-in connectors with high current-carrying capacity

5. Network connection

Maximum data and operating security

Network connections support communication with external devices. This is important if, for example, the system is to be monitored or controlled via a PC, laptop or Smartphone. This means that the various parameters can be adjusted conveniently and with little expenditure of time and effort. These operations include selection of the operating program and of setpoint temperatures, the display of efficiency data including the solar yield and operating hours, transmission of fault messages to a Smartphone, communication with a smart home system and much more.

Industry-quality data connections are essential for reliable data transmission. Our Industrial Ethernet components meet the highest quality requirements and are designed to maximise data and operating security. We offer various versions of RJ45 plug-in connectors to establish network interfaces.

Our RJ45 connection components for the PCB offer electromagnetic compatibility, shielding protection and fulfil the requirements of IEC 60603-7-5. They are also especially well equipped to meet future demands as they fulfil the requirements of the latest Cat.-6 standard for Gigabit applications. Thanks to their variable conductor outlet orientations, our RJ45 connection components can be optimally adapted to various housing designs. You can decide whether they are equipped with copper or fibre-optic conductors and between various plug types – entirely in accordance with your requirements and specifications. The Weidmüller Cable Configurator supports you in your individual planning.



RJ45 PCB sockets in IP 20 for copper and fibre-optic cables

Would you like more detailed information?

Enter the search terms below in our online catalogue at:
<http://catalogue.weidmueller.com>

1. Power inputs

OMNIMATE Power PCB plug-in connectors

- SL 7.62HP
- BLZ 7.62HP
- BLF 7.62HP
- SVF 7.62HP
- BVF 7.62HP

OMNIMATE Signal PCB plug-in connectors

- BLZP 5.0xHC
- BLF 5.0xHC
- SL 5.0xHC
- SL-SMT 5.0xHC

OMNIMATE Signal PCB terminal blocks

- LM
- LSF-SMT

2. Sensor inputs

OMNIMATE Signal PCB plug-in connectors

- SC-SMT 3.81
- BCZ 3.81
- SL 3.50
- SL-SMT 3.50
- BL 3.50

OMNIMATE Signal PCB terminal blocks

- LSF-SMD
- LSF-SMT
- LM
- PM

3. Remote signal inputs

OMNIMATE Signal PCB plug-in connectors

- SC-SMT 3.81
- BCZ 3.81
- SL 3.50
- SL-SMT 3.50
- BL 3.50

OMNIMATE Signal PCB terminal blocks

- LSF-SMD
- LSF-SMT
- LM
- PM

4. Heating outputs

OMNIMATE Signal PCB plug-in connectors

- BLL 5.08
- SLS 5.08
- SLF 5.08

OMNIMATE Signal PCB terminal blocks

- LSF-SMD
- LSF-SMT
- LM
- PM

5. Network connection

RJ45 PCB sockets

- IE-PCB-RJ45-THR-C5-SLM1
- IE-PCB-RJ45-SMD-C5-A
- IE-PCB-RJ45-SMD-C5-S
- IE-PCB-RJ45-THR-C6-S



Our online product assistant is also available
for accurate configuration:
<http://galaxy.weidmueller.com>

Let's connect.

Weidmüller – Your 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.



Let's connect.

Simply scan in the QR code
and get to know our innovative
AppGuide online.

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