Food & Beverage Industry Solutions from Weidmüller

Let's connect.

Consumer Goods and Packaging

Weidmüller 三Σ

Get a taste for innovative system solutions

In food and beverage production, and in the packaging industry, there are strict requirements in terms of hygiene standards, degrees of protection, and corrosion resistance ... The modern plant designs stand out due to their high levels of modularity and flexibility. Today, we manage consumer good segments such as food, beverage, tobacco, pharmaceutical, cosmetics, and healthcare. With deep expertise and experience, we take care of the whole process, from raw materials through processing and packaging line, up to the final goods. Driven by market share and sustainability, due to the increased awareness of capability to produce quality goods with the highest efficiency. We are facing a new industrial challenge focusing on digitalization, production flexibility, and smart devices able to communicate sensitive data with positive impact in production effectiveness.

As a reliable partner for the Consumer Goods & Packaging industry, our customers can be sure of:

Global Footprint
Thanks to our worldwide presence, we can globally grant support both in terms of services and delivery.

Technical Competence
Weidmüller team has extensive experience in the segment and can provide added value in automation applications.

Quality and Performance
Innovations, performance and quality are the key factors of our added value proposition.

Research and Development
As a future-oriented company, we permanently deal with new solutions for market requirements.

Industry Knowledge
We have a long track record of establishing effective and productive relations with end users and manufacturers.

Facing market challenges with innovation and passion

Processing Line

In today's world of global markets and stiff competition in every product, it becomes imperative for companies to explore ways to improve their productivity in terms of maintaining safety, using sustainable materials, and implementing flexible and standardized technology. With this perspective, Weidmüller provides state-of-the-art technology in the fields of automation, connectivity, and digitalization!

Packaging Line

In consumer goods packaging, success is strongly driven by the capability of reaching customer satisfaction, and is mainly led by intangible, fleeting sensations and passions. Integrating flexible lines and synchronizing robots, as well as different types of packaging machines, up to palletizers and AGVs, are necessary to follow consumer trends.

The success of our customers drive us

Together with our customers, we work on innovative and future-proof solutions. In order to achieve the greatest possible success in our projects, we contribute:

- Digitalization and communication
- Optimization of automation architecture
- Highest level of flexibility and maximum line availability
- Cost-effective products and safe production
- Energy quality and traceability

Food and Beverage Industry Zones

Hygienic Design Food Zone

The Hygienic Zone environments in the food & beverage industry is where the equipment regularly and predictably encounters food as it being produced. Food conveyors, mixers, nozzles and cooking surfaces are examples within this environment. Automating this zone brings a unique opportunity as it represents the highest probability of product contamination if a pathogen were present on the equipment. Weidmuller offers cables and connectors are frequently needed in this zone for sensing applications each one individually marked with a detectable capability.

The Stainless-Steel boxes are easy to clean and help in the design of hygienically flawless machines and equipment have the top priority, whether foods or beverages are delivered, produced, processed or packaged. For the installed automation or electrical equipment this means: They must have a washdown design, so that they can for example withstand frequent and intensive cleaning and disinfecting cycles in an injection molding environment.

Processing / Mixing area

The food industry has some of the strictest hygienic and quality regulations in the industry. These high standards are built into the machine design has a direct impact on the high quality of the final products produced. Weidmuller offers many sensor options and system solutions for hygienic applications which ensure the highest reliability and flexibility in challenging conditions. Flexible, easy to program PLCs, I/O and screens allow for precise measuring and mixing with simple vivid visualization options.

Machinery control panels are generally smaller as they are specific and attached to a single machine. Machines in this industry are primarily making the vessel that houses the food or beverage, be that a can, jar, bottle, box, etc.

Splash-Area Zone

Zone 2 describes areas immediately surrounding the food production zone. A pathogen in Zone 2 will not contaminate food by itself. Dripping product or run off from equipment in Zone 2 can cause product contamination. The environment is regularly cleaned as part of any plant Hygiene Plan. These areas need to be swabbed for Listeria and Salmonella even though they are not in constant contact with food as it is being produced. Cables, connectors and conduits used in this area need to withstand harsh cleaning processes and be designed in a way that is consistent with good sanitary food design machine practices, eliminating areas where moisture can collect.

The cost of cleaning and indeed the cost of not cleaning can be measured by food companies. The typical cost elements of a cleaning program can include:

- Water supply, treatment and purchase
- Water heating
- Cleaning equipment
- Corrosion
- Monitoring effluent
- Downtime

Preparation

The industry is subject to some very strict hygienic and quality regulations. Therefore, a real-time capable and transparent production process with modular production lines is indispensable for efficient production. Only in this way can traceability and flexibility be ensured. Our comprehensive product portfolio enables you to optimally configure your equipment and machines for meeting the demands of your customers.

Grading & Detection

Identifying manufacturing and processing errors as early as possible is essential for high productivity. Continuous checks during the production or packaging process are critical here. They prevent lost batches and lower your costs.

Heat / Freeze Processing

The heat or freezing process is designed to combine the effects of temperature and time to eliminate microorganisms from a consumable product and a control monitoring system is used to record temperature and divert flow back to balancing tanks or side processes if the correct temperature is not achieved. Products with wide operating temperatures mean the controls panels can be installed into these environments and still maintain the level of accuracy needed for the process.

Packaging / Bottling

Detecting the levels of different materials is an important part of the food and beverage industries. Depending on the type of material or container there are different requirements for the sensors and control systems. This is where monitoring of the fill times continuously or packaging prepared foods, automation systems can provide insight into materials usage and even track final yields back to specific vendors.

Real time plant performance measures from data for improved operational efficiencies, reduced waste, and improved yield. This is all done through the IO points and fast process of the information in the PLC. Technicians can monitor the process on the touch screens or HMIs or remotely through routers or Wi-Fi access points.

Non-Food Zone

The controller, often also called master; controls the data exchange with the connected slaves, monitors the replies and transmits data to the higher-level controller or DCS system. The automation level in this section calls for easy handling, fast data transmission, low costs and quick mounting technology. The different segments can be connected to a control room over long distances via fieldbus gateways or wireless devices. As the fieldbus is most of the time considerably slower, decentralised data preprocessing is often required.

Conveyors in the food and beverage industry often have a variety of monitoring systems to help determine that everything is running appropriately between the machines. These monitoring systems are typically sensors, cameras or lasers that can identify when items are passing certain checkpoints, the frequency at which they're passing and even perform quality checks. All these monitoring systems also get programmed into the control panels we build so all the systems within the facility work together.

Storage

Flexible and scalable solutions for packaging allows for modular and scalable systems. With in-line impact resistant solutions to provide power, controls and IoT capability Weidmuller helps customers reduce downtime for changeovers, increase production rates and lower periodic maintenance.

To increase the efficiency of safety concepts and integrate them in the system control inline bus control systems can be integrated to handle communication down to the last meter and provides both sensor/actuator details as well as secure information.
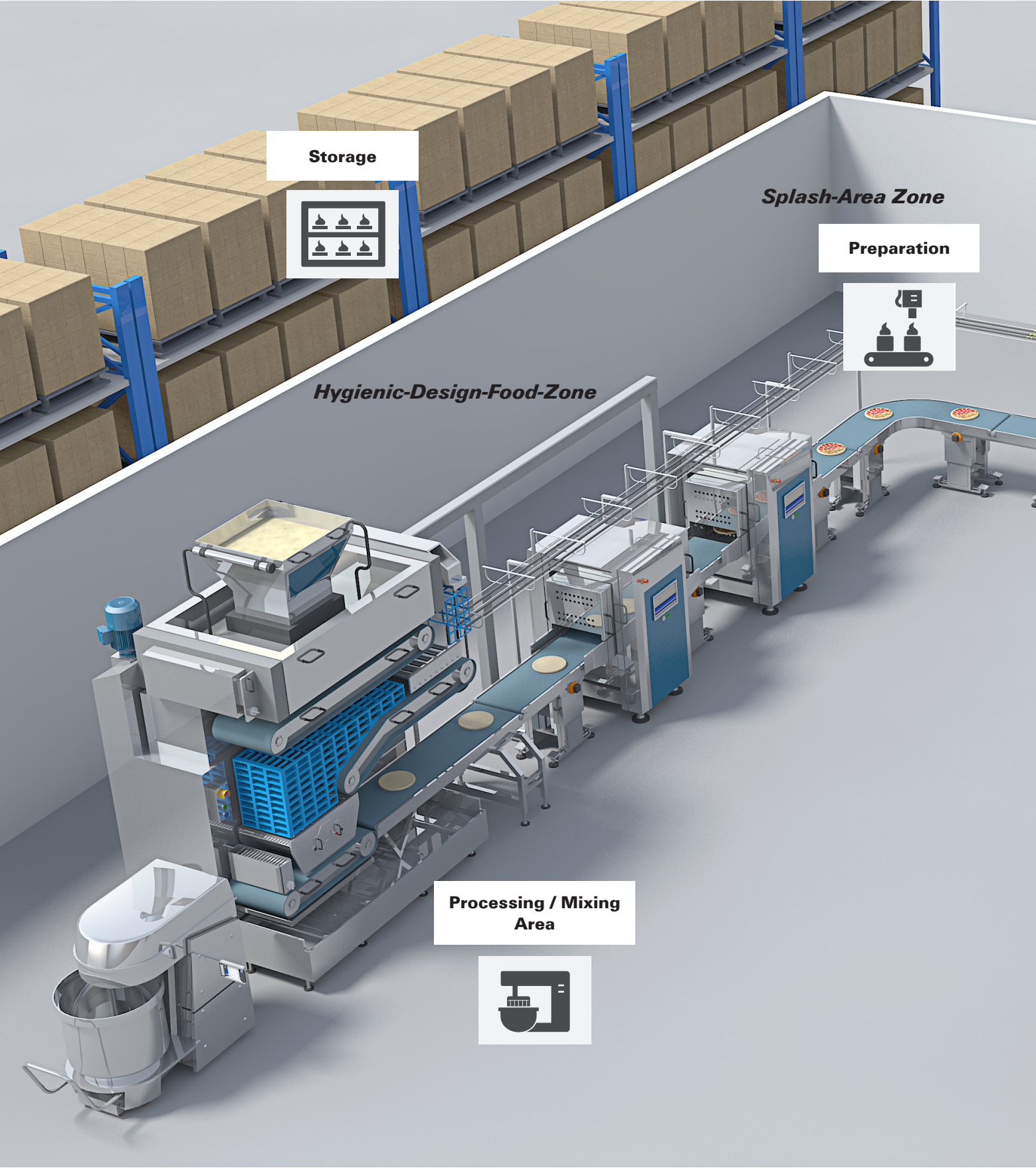
Utilities / DCS

Most plants require a utility control panel populated with terminals, circuit protection, PLCs, relays, motor controllers, pushbuttons, network switches an HMI and energy monitoring systems.

This is also typically where the main supervisory control system is located and connected to the other sections in the plant to ensure. Maintenance is another key consideration for electrical control panels. Facilitating maintenance is a critical element in custom electrical control panel design.

- Clearly labeled components, wiring, and terminals for power distribution
- Capability to monitor the status of the various electrical connections
- Control of particulates and dust within the enclosure

These are all key considerations when selecting what goes into a utility or DCS control panel.

Process Map

Storage

Splash-Area Zone

Preparation

Hygienic-Design-Food-Zone

Processing / Mixing Area

Utilities
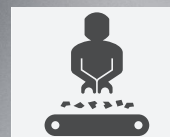
Grading & Detection

Heat / Freeze Processing

Packaging

Non-Food Zone

Administration - Demand Planning, Record Keeping, & Maintenance Services

Solutions in Detail

HMIs (Touch panels & Displays)

- With our u-view touch panels and the web-based, scalable software u-create PROCON-WEB, the whole process chain is at your fingertips.

- u-view touch panels are available in multiple variants and have an excellent image quality used in an industrial environment without any restrictions in robust aluminum housing in IP66 rating degree of protection.

Distribution systems (Fieldpower)

- Fieldpower Solutions allow for decentralized power and IO distribution as an alternative to having a central control cabinet.

- Sleek robust design for the tapping off power without cable termination.

- IDC technology ensures a secure connection and power transmission.

- FieldPower® enclosure with integrated electronics is a reliable IP54/67 power solution for quick in-line operation.

PLC's and Remote I/O

- IIoT controllers and gateways for IP20/IP67 solutions.

- Simple easy to use web access configuration software. User configurable IO points means one IO card can be multiple temperature measurement devices in both the u-control and u-remote families.

- Multi-protocol solutions for PROFINET, EtherNet/IP and EtherCAT IP67 devices for inline I/O transmission.

- Integrated Safety I/O monitors the line and can be immediately stopped in case of emergencies.

- Configurable analog slice per channel.

- u-create studio is the all-in-one engineering suite for all phases of an automation process.

- From configuration to programming to diagnosis and simulation, we offer customers a comprehensive engineering environment.

- OPCUA compatibility allows for communication to multiple platforms simply and easily.

- Our PLC solutions use the IEC 61131-3 programming standard.

- Field wiring termination and control system marshalling for DCS or PLC's

- Universal conversion/ migration platform for updating legacy DCS/PLC to new systems.

DC Power Protection

- More than just isolate a failure, topGUARD can read current, voltage, temperature and reversal voltage in each protected branch.

- This data is available in IO-Link protocol and can be used to reduce maintenance time and predict failures.

- In areas where no communication is required the maxGUARD saves space inside the electrical panel, allows a better organization of control voltage distribution and protects the load and wiring against overload.

Service Interfaces

- FrontCom Vario service interfaces - Sleek yet robust modular design. Available in kits or you can design your own with our online configurator, up to 5000 different combinations of power, signal and data connections avaialble.

Circuit Breakers

- For mobile equipment such as heaters, cooking, ice makers and or cooling systems reliably protect AC/DC circuits using the BR/SU Circuit Breaker series.
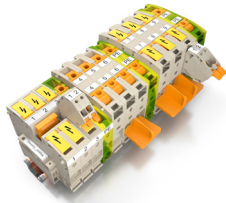
Network Connectivity

- Fast data transfer with managed and unmanaged switches. Variable number of ports.

- Cameras are connected via Power-over-Ethernet (PoE).

- With wide operating temperature ranges they can be used in deep-freeze areas and high temp areas.

- Managed and unmanaged devices to connect PLCs and HMIs to other parts of the machine and to the IO.

  u-link Remote Access Service: Secure remote access is easily achieved through wireless devices over hardened Wi-Fi or cellular access; which means that the line does not have to stopped to access the PLC or other datapoints inside of the control panel.

Power Supplies

- Can be connected in redundancy to supply critical process without redundant diode.

- Communicate in IO-Link protocol.

- Active current sharing in output can balance the current of up to 10 power supplies connected in parallel.

- Safe triggering of line protection switches and high energy reserves for powerful motor launches thanks to DCL

- High energy efficiency (up to 99.4 %)

Power Feed-In Terminal Blocks

- A proven solution to reduce space and wiring time in control cabinet construction that enables safe and efficient power distribution to power consumers – quickly, easily, and in the smallest possible space. The new A2C 50/70 and A2C 95/120 terminal blocks are suitable for cross-sections from 8 to 4/0 AWG and feature the innovative PUSH IN-Power connection technology. This enables particularly fast wiring without tools and ensures a permanently secure, gas-tight, and vibration-proof connection of the conductor.

Signal Isolators and converters

- Signal converters for DC standard signals, 4-20 m A and 0-10 V isolating amplifiers, switching amplifiers, frequency converters, and threshold switches are characterised by a high level of accuracy, universality and a wide assortment of variants.

- These are used to connect and isolate sensors for temperature, pressure, level, flow volumes, weight, and speed to the Remote IO or PLC inside the control cabinet.

Signal Wiring Terminal Blocks

- AIO 21 / 22 / 23 Terminal Blocks for signal wiring

- Our application-specific initiator/actuator terminal blocks of the AIO series are specially designed for the signal wiring requirements for automation solutions. Offers tailored, extremely compact solutions for the structured wiring of initiator and actuator signals with the input and output modules of a programmable logic controller (PLC).

Crimping Tools, Wire Markers & Device Markers

- Professional tools that optimize workflow and efficiency, provide a secure connection using our UL certified ferrules.

- Our range of markers enables you to mark virtually any component or conductor.

- MetalliCard markers have the highest chemical resistance, stainless steel material, are appropriate for hygienic zones, and adheres to FDA standards. Detectable by metal and X-Ray detectors, corrosion resistant and aging resistance against UV and heat.

Control Voltage Terminal Blocks

- Control Voltage Distribution Terminals (AAP 11 / 12 / 13 / 21-22 Series)
- The control voltage distribution terminal series provides 5 distinct offerings which can reduce 50-70% space requirements when compared to traditional terminals distribution setups. With added space, additional functionality can be gained without enlarging enclosures. Wiring time, with Push IN can be reduced by 30 -50% when compared to screw clamp technology.

Modular cable management: Cabtite II

- Cable entry system offers maximum flexibility in cable management on control cabinets and peripheral equipment. Easy adjustable changes to wire arrangement in the event of equipment changes or routine maintenance.
- Audible assembly indication ensure proper installation to meet IP66, NEMA 4X and 12 ratings. Snap-in inlays and sealing elements allow for quick assembly of multiple configurations without special tools. Series has an operational temperature range of -40 to 120C.

Sensor Cabling

- SAI Cables and connectors - Wide variety of industrial standard connectors and pre-assembled cordsets. Fast and simple field wiring options that save time and provide reliable connections in the field.

Relays

- Labelling and wrapping applications are made easy via the TFI Timer series relays, selectable response time and various timing functions in a compact, space-saving design.
- Fluctuating temperature and humidity control in oven, griddles, toasters, and steamers can accurately and safely be achieved using our Rohs compliant and mercury free TOP Termseries solid state relays.

Surge Protection

- VPU AC II US series for protection of AC mains power from surge and transient over voltages generated by electric motors, inductive loads, drives and even portable tools used in production or facility.

HDC Connectors & Terminal Blocks

- Rockstar® through cabinet wall terminal block solutions are a great new way to bring terminal blocks away from the din rail and utilize space in the cabinet wall. Robust and compact to free up space inside the cabinet. A part of the Moduplug series and can be placed alongside other modules for a truly customizable solution to mix power, signal and data in one connector.

Terminal Enclosures & Control Panel Solutions

Weidmueller offers complete terminal enclosures, control panels and control stations solutions

- Grade 316L and 304 Stainless Steel and Non-metallic glass reinforced polyester (GRP) enclosure solutions for Nema 4X/IP66/IP69K wash down/hose down applications
- Virtually all Weidmueller components (terminals, operators, power supplies, circuit breakers, U-REMOTE, Cabtite) can be installed inside the control panels while maintaining global certifications including UL/CSA
- Control stations in both GRP and stainless steel for motor control and tank controls for Food & Dairy

Detectable Marking Systems for Food Production

Weidmüller offers you detectable marking solutions for the MultiCard and the MultiMark family.

Food safety at the highest level

Thanks to a metallic filling material, our detectable markers are identifiable by metal and X-ray detectors. This minimizes the risk of contamination during the food production process.

Markers maximize safety thanks to properties such as corrosion resistance and ageing resistance against UV radiation and heat.

We regularly check and confirm these properties in our accredited laboratory.

Features and Benefits

- Detectable by metal and X-ray detectors
- Visually recognizable by blue color
- Corrosion resistant metallic filler
- Clear and resistant print image
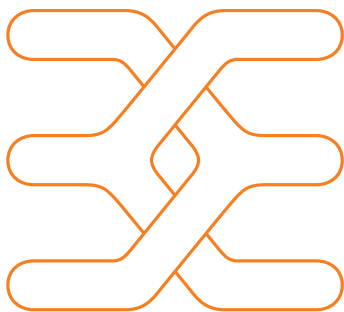- Different versions available for a wide variety of marking requirements

The food and beverage industry places the highest demands on quality, hygiene and safety. With our detectable marking solutions, we support our customers in ensuring that the high standards required within the HACCP concept are met.

Detectable plastic material

Plastic parts pose a risk of product contamination. Our innovative markers are made of a special plastic with metallic filler: This means that even fragments can be reliably detected by commercially available metal and X-ray detectors within the framework of standardized processes. We offer you a comprehensive product range for the marking of machines and equipment in the food industry.

Weidmüller – Your partner in Industrial Connectivity

Weidmüller is the leading manufacturer of components for electrical connection technology to transmit energy, signals and data.

The Weidmüller product portfolio ranges from terminal blocks, PCB connectors and terminals, protected components, Industrial Ethernet components, I/O components and relay sockets to power supplies and over-voltage protection modules suitable for all applications. Assembly services, and marking solutions with a variety of tools and software systems, round off the range.

As an OEM supplier, the company sets global standards in the field of electrical connection technology. Let's connect.

Weidmuller, Ltd
10 Spy Court
Markham, Ontario L3R 5H6
Telephone: (800) 268-4080
Email: orders_can@weidmueller.com
Website: www.weidmuller.ca

Weidmuller, SA de CV
Blvd. Hermanos Serdán 698,
Col. San Rafael Oriente
Puebla, Puebla, Mexico C.P. 72029
Telephone: 01 222 2686267
Email: clientes@weidmueller.com
Website: www.weidmuller.com.mx

Weidmuller, Inc
821 Southlake Blvd.
Richmond, Virginia 23236
Telephone: (800) 849-9343
Email: info@weidmuller.com
Website: www.weidmuller.com

Weidmüller