



Food and beverage processing industry

If there is one industry that we just cannot do without, it has to be the food and beverage processing industry : people just have to eat ... there is no way around it.

The food industry has always been confronted with many challenges : How do we feed everyone? How do we offer better quality products without increasing prices? How do we efficiently manage production? To deal with these issues, the food industry has embraced innovation to optimize its operations.

Predicting the future of the food and beverage industry is not an easy task, especially after the challenges of the last few years. Our efforts to support the industry during the pandemic has provided us with some insights on the trends that will continue to influence this market segment in 2023 and beyond.

Based on this market data, [celduc[®] relais](#) will invest in innovations that will help you develop new products to meet the needs of your customers.



Food manufacturing industry trends

1- Increasing use of Automation and Robotics in the Food Industry

Robotics and automation are changing the Food & Hospitality sector at an exponential rate.

-like most other processing industries, food companies are implementing ways to **improve productivity throughout the plant** with the use of factory automation. This automation is absolutely necessary to satisfy the world's demand for processed food products.

-**automation is also used to increase user satisfaction**. For example, automatic food dispensers are becoming more and more popular. Not only do they allow a vendor to satisfy



demand at any time of the day but they also increase the number of customers that can be served. One fast growing example is the development of automatic pizza vending machines.



2-Choosing equipment which enables efficient, safe and precise cooking

Efficient, safe and precise cooking are essential for professional kitchens.

Today's restaurants and cafes rely on innovative equipment for cooking and warming the food they serve. They use equipment such as combi-steam ovens, air fryers, food warming cabinets, coffee machines, and a variety of refrigeration equipment to prepare the food that customers enjoy. Some key trends impacting this new generation of equipment are:

-EFFICIENT : They save energy and money by using more energy-efficient cooking methods

-SAFE : The way we cook food has a significant impact on how healthy it is to eat. For example, using less oil in the cooking process thanks to the use of steam ovens or air fryers makes the food we eat better for us, In addition to producing more nutritious food, the food processing industry has worked on developing equipment that is safer to use by operators of all skill levels.

-PRECISE : When dealing with food production, maintaining accurate temperature control is critical. From the very beginning to the end of the production process, accurate temperature control is crucial to the user's productivity.





3-In compliance with EMC standards for commercial and household use

Electro Magnetic Compatibility standards limit the electromagnetic emissions from food processing equipment in order to ensure that, when used as intended, such equipment does not interfere with radio and telecommunication systems as well as other food processing equipment that is being used.

4-In compliance with IEC60947-4-3 Environment B for low voltage domestic, commercial and light industrial locations/installations.

Since solid state relays have no moving parts they do not produce any acoustic noise and they also produce less EMI noise than other switching solutions. Due to the technology used in our products, Celduc SSRs comply with the levels specified by standard IEC60947-4-3 Environment B for low voltage domestic, commercial and light industrial locations/installations.

Our products are designed to meet your expectations

If you are looking for

1. **Simple, quick and error-free installation**
2. **Compact** solutions
3. **Long life time** and **reliability**
4. **Optimized EMC** (low electromagnetic emission and low Radio Frequency Interference)

then Celduc's SSRs are a good choice for your next design. Our SSRs are designed to handle low current digital control signals while delivering the high speed switching necessary to , maintain proper temperature control in the most demanding applications.

Electro Mechanical Relays just cannot keep up in these types of food processing applications. Learn more about [celduc's solutions for professional food equipment](#)

Our innovation = Your advantages

From its portfolio of standard products or by developing custom devices according to your specifications, celduc® relais offers **Solid State Relays** and **Magnetic Proximity Sensors** that will take your design to the next level.

Our production and testing equipment has many systems that were developed in-house so as to increase our capacity and throughput. As a result of this unique tooling, celduc® products are now found in name brand food processing equipment all over the world. The number of



restaurants and industrial food and beverage processing factories that are safely equipped with our products is now The fact that our **engineering and manufacturing teams are in the same location gives us an edge on our competitors**. As we progress from concept to technology, from design to final product, and as we optimize our production equipment, our team has demonstrated that they can be very efficient in implementing changes to our existing processes.

At celduc® relais, **research and development is an integral part of our innovation strategy**. This high level of integration is what keeps the company competitive on the world market. Our engineers and technicians are working together to design innovative products that meet your needs. On average, 10 to 15% of our annual production output are new products.

Why should you put your trust in us ?

-We have **more than 50 years of experience**: this experience allows us to better understand the problems that our customers face in developing new equipment. This then allows us to respond very precisely to your needs. In our business, we have found that a deep understanding of your application will lead to a better product.

-Local staff with our North American subsidiary celduc inc. : **proximity and responsiveness**

-Integrated **R&D Team** with production based in France.

-**We manage the complete production cycle**. This has several benefits for celduc® and its customers : Independence, Flexibility, High Quality, Production Efficiency and Leadtime Management.

Here are Celduc's solutions for heating & motor control :



celduc® Solid State Relays (SSRs) are widely used across the food industry, as opposed to electromechanical relays (EMRs), because of their ability to function seamlessly in harsh environments (dust, gas, shock and vibration). Since they are fully electronic, SSRs have no mechanical moving parts. As a result, they have a much longer service life than EMRs. In addition, their semiconductor-based design makes them environmentally safe which means



they can be used in a wide range of applications such as: ovens, fast food equipment and coffee machines.

In Stoves and Ovens



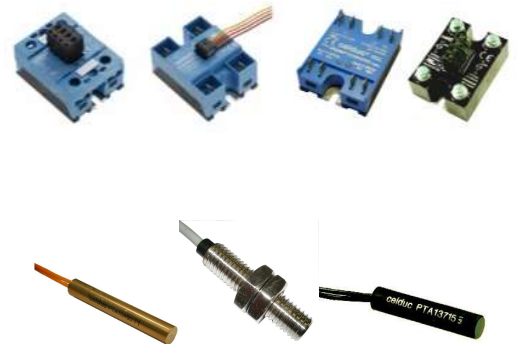
In stoves, **SSRs are used for:**

- heating element control
- control of the water heater used for steam production in “combined” ovens with convection systems
- fan motor control for hot air distribution in convection ovens

Key products : [Two-Phase Solid State Relays](#)

In addition, **our magnetic sensors are used as door position detection devices** (to detect if a door is open or closed).

Key products : [Tubular position sensors](#)



Rotary pizza ovens :



Solid State Relays are used to control the turntable temperature and motors.

Key products : [Single Phase Solid State Relays – okpac range](#)





Bakery ovens and equipment



Celduc SSRs are used for pre-heating and temperature control in bakery ovens because they can handle very high switching frequencies.

Key products: [Three-Phase Solid State Relays](#)



Coffee machines



Heavy-duty coffee machines are designed for commercial uses such as in the hospitality industry or in workplace cafeterias. These machines perform multiple functions from grinding coffee beans, to heating and pumping water, hundreds of times per day.

The high number of multiple operations to control heating, motors for pumps and grinders, as well as the need for high reliability, means that solid state relays are typically used in this application instead of electromechanical relays.

Motors are inductive loads that come with some disadvantages:

- high starting currents that last a few seconds and are up to 10 times the nominal current
- high over-voltage and high dv/dt that may damage or unexpectedly turn the relay on.

For these reasons coffee machine manufacturers use Solid State Relays.

Key products: [Two-Phase Solid State Relays with Faston Terminals](#)





Fast Food Equipment



Components used in fast food equipment must be reliable and they must be able to handle high frequency switching. celduc's Solid State Relays have been designed with these applications in mind and meet these requirements.

Key products: [Miniature Solid State Relays with Faston Terminals](#)



Vending machines



Vending machines typically use two different categories of celduc's products.

Magnetic proximity sensors are used in vending machines for:

- Door position detection: to detect if a door is open or closed
- Product presence detection in the dispensing mechanism

Key products: [Screw Position Sensors](#)



Solid State Relays are used to control the temperature of vending machines that dispense hot drinks.

With more than 50 years of experience in the design and production of components for the food and beverage processing industry, celduc® has demonstrated that it can supply high-reliability switching and sensing devices. If our large selection of standard products does not meet your needs, please [contact us](#) so that we can discuss our custom solutions to help you optimize your design.