

### OMRON Technology Used in Vending Machines Across Cities

#### A Convenient Life Supported by Electronic and Mechanical Components

**Hoofddorp, Netherlands, Monday, 18 January 2021** – Vending machines can be found all over cities, towns and station platforms worldwide. They are part of our daily lives. OMRON contributes with more than 40 electronic and mechanical components which are used to keep a single vending machine operating, performing a variety of functions. Recently, some vending machines use OMRON technologies to recognize the face of the users and estimate their attributes and facial expressions, enabling them to propose products that match the preferences of a user.

In this article, we will introduce OMRON electronic and mechanical components and technologies used in vending machines.

#### Electronic and Mechanical Components that Support Our Daily Lives

A variety of products and services make our lives more convenient. One such product is a vending machine, which can be found worldwide and which is used by everyone from children to the elderly. It's a convenient product that allows you to get a drink at the right temperature by just inserting coins or bills. Electronic and mechanical components such as switches, sensors and relays support these operations. Although we cannot directly see them because they are embedded in the appliances, each of them plays a role in operating a vending machine.



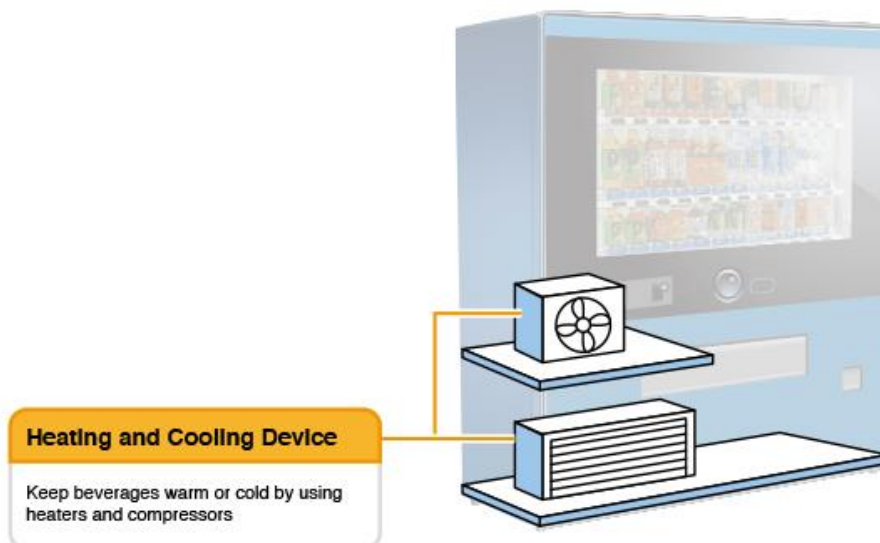
Now, let's take a look at some typical examples of what kind of electronic and mechanical components are used in vending machines today.

### Tactile Switches



Tactile switches are used to determine which product a user has selected. There are switches inside each product selection button. When a person presses the button, the switches turn on and the electricity current will flow. By doing so, the system can determine which products have been selected and products will come out after just pressing a button. In addition, the system is designed to ensure that the sensation of pressing a button is transmitted to your fingertips. With this ingenious "Tactile Switches", the users will know clearly that they have selected the desired product.

### Relays



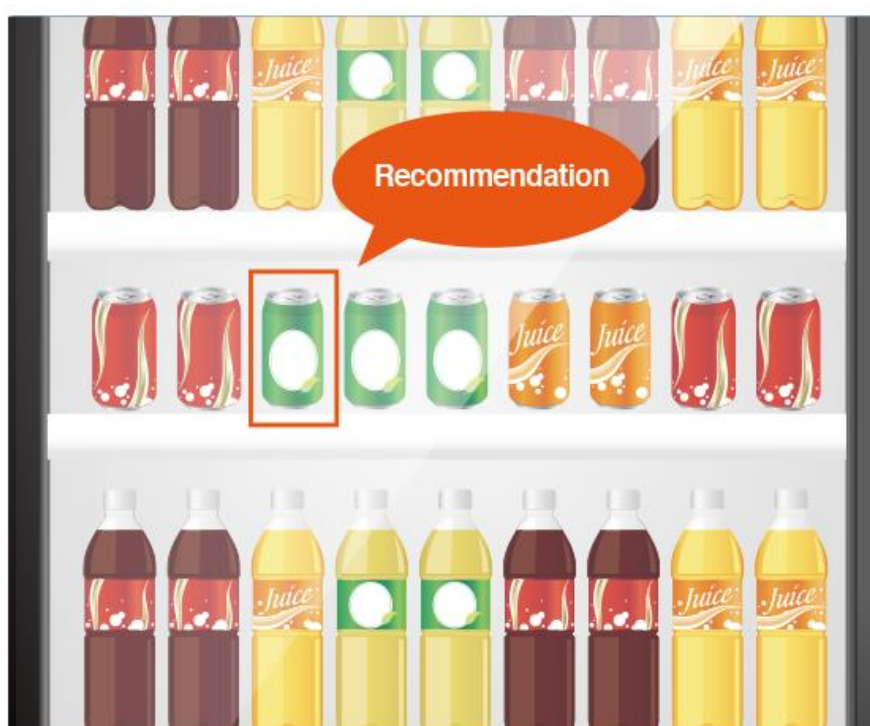
*Mechanism Inside a Vending Machine*

Relays are components that receive electrical signals through switches and other devices to turn on, off, or switch electrical circuits. In vending machines, relays are used to control the on/off of current flowing to heaters for heating drinks and compressors for cooling them. This supports the functions of heating and cooling drinks in a vending machine.

### Light Guide Plates

Light guide plates are used for display panels that indicate the status of a product, such as "sold out." Light guide plates are thin, plate-like components that can diffuse light from a light-emitting body on its side to produce a uniform light on its surface. This eliminates the need to put fluorescent lights or LEDs in the back of the display, reducing the thickness and making effective use of space.

### OKAO Vision



*Recommendations Display Screen (Image)*

Specific type of vending machines that use OMRON's image sensing technology "OKAO Vision" are also becoming popular. It estimates the gender and age of the person buying the product from the camera image and this adds "recommend function" which suggests suitable products for that person to vending machines. OMRON's sensing technologies are also used to realize a new function that goes beyond just providing beverages and allows a vending machine to give a recommendation of beverages to the user.

As you can see, more than 40 electronic components play an active role in operating the vending machines that we use so casually in our daily lives.

### Future Developments Supported By Electronic and Mechanical Components

Currently, there are more than 2 million vending machines (\*1) in Japan, and in the trend of IoT utilization, their new role is attracting attention: the evolution of vending machines as terminals for collecting and utilizing information of their surroundings. In addition, the emergence of models that can distribute free beverages in times of disaster, and the idea of making them function as base stations for cell phone 5G

communication networks, enable them to support lifelines. As vending machines become IoT-enabled, we can remotely monitor information on the number of products in stock which can be detected by OMRON switches, optimizing the number of times they need to be replenished. This function helps to solve labor shortages.

Furthermore, new social needs, such as non-contact operation and remote support, has been emerging due to the COVID-19 risks. In response to these needs, OMRON is taking initiatives to solve social issues by utilizing new technologies.

The vending machine introduced here is just one of the most familiar examples. OMRON electronic and mechanical components (\*2) are also used in various applications in a wide range of industries, including smartphones, home appliances, automobiles and industrial equipment, and they are supporting our daily lives in ways we cannot see. By providing sensors, devices and modules on a global scale, OMRON will contribute to the development of people's lives and societies around the world.

\*1 Japan Vending System Machinery Factory Association, "Number of Vending Machines in Use: As of December 31, 2019."

[https://www.jvma.or.jp/information/information\\_3.html](https://www.jvma.or.jp/information/information_3.html)

\*2 [About OMRON's Electronic and Mechanical Components Business](#)

## **About Omron**

Omron Electronic Components Europe is a leader in electromechanical PCB relays, as well as a leading supplier of components such as micro switches, MOSFET relays, DIP switches, photomicrosensors and connectors. Omron has a strong portfolio of innovative technologies including MEMS based pressure, flow and thermal measurement sensors, human face and gesture recognition modules, vibration and tilt sensors.

Omron Electronic Components Europe strongly supports its customers in Western and Eastern Europe, Russia and the CIS through 8 regional offices, a network of local offices and partnerships with specialist, local, regional and global distributors.

Omron Electronic Components Europe is a subsidiary of the Omron Corporation, recognised worldwide as a leader of high quality, high technology electrical and electronic control equipment and component products.

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