



Gerber humidors

Digitalising cigar storage



A feel-good oasis for cigars

Industrial automation technology for a perfect climate in Gerber humidors

Storing valuable cigars is almost a science. True aficionados spare no expense in storing the rolled tobacco leaves in sophisticated humidors. What you cannot see: Behind the façade, sophisticated technology maintains a constant humidity to keep the aromas and consistency of the cigar in optimum condition.

Founded in Duisburg 140 years ago, Gerber is a joiner's business that is steeped in tradition.

Karl-Heinz Gerber is the fifth generation of his family to lead the company and explains: "We are still traditional joiners, but we also cover a broad spectrum of services including store fitting, interior fittings and exhibition stand construction. A few years ago, we also launched 'Gerber Humidor'. This brand represents our passion for creating the perfect, unique piece of furniture with equally perfect humidity for cigar aficionados. Our mission is to build the world's most beautiful humidors. To do this, we use the best and most expensive woods on the market."

So it is no wonder that Gerber's customers include Hollywood greats and famous football stars.

Comprehensive expertise required

From a purely technological point of view, a humidor ensures that cigars are stored in optimal conditions and therefore maintain their value and quality. Our customers have high standards, as **Karl-Heinz Gerber** knows: "You need to have a very high level of technical expertise to ensure the optimum humidity in these humidors. The humidity level can be set by the cigar aficionado depending on their taste and preference. What makes it complicated is that the external climate conditions have an impact on the humidors."

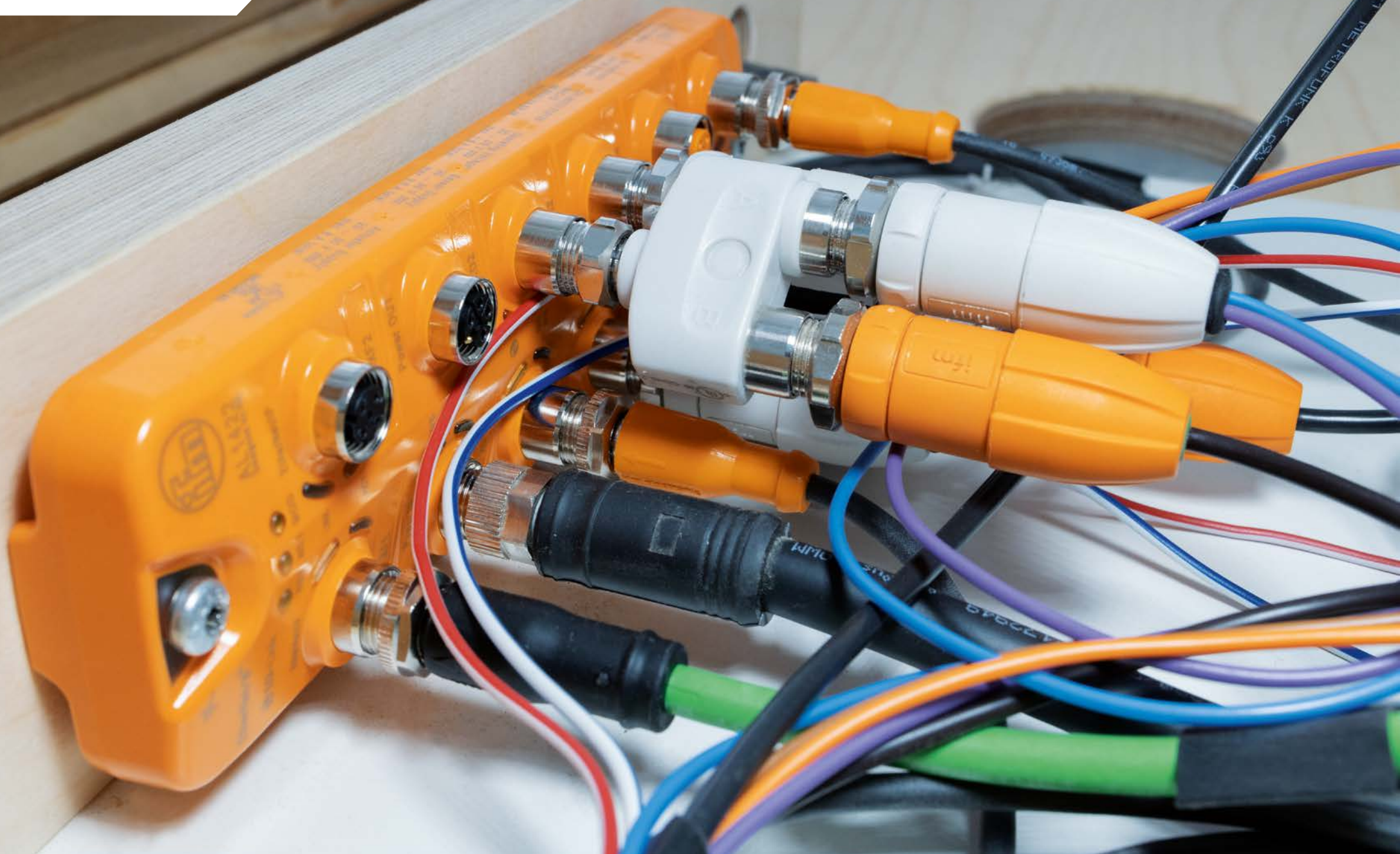
This is why Gerber humidors offer an automatic humidity regulator developed and implemented in cooperation with the automation specialist ifm.

"We measure and control humidification and dehumidification. In doing this, we take into consideration the ambient humidity, which can be very different in different countries around the world. At the same time, we also have to control the ventilation. So, all in all, it's a very unique and complex situation. The art here is in ensuring the perfect humidity on all levels of the humidor. It requires experience and, of course, the right technical equipment," says **Gerber**.

Humidors provide optimum humidity to ensure that expensive cigars are stored perfectly.



The consistent use of connectors here on the IO-Link module prevents cabling errors and makes it possible for components to be easily replaced in the event of a fault.



” *The edgeController is ifm’s first product to feature an automation server. So, if any problems arise, you can easily access it via remote maintenance.*

Wanted: a partner with international experience

When Gerber decided to forge ahead with the automation of its humidors a few years ago, they had to find a partner with an industrial background, active in the German and international markets. The head of the company explains why this was necessary: “We deliver our humidors worldwide, so we want to offer maintenance-free solutions because international support is time-consuming and expensive. Our customers store very expensive cigars in our humidors – we’re talking five or six figures here. That’s why we needed a partner that could supply us with reliable technology. We did our research and found that partner in ifm.”

Requirement: Simple cabling and remote maintenance

In the joiner’s workshop in Duisburg, the humidors, which are often the size of cupboards, are assembled with the highest standards of craftsmanship using fine woods and veneers and equipped with electronic components for humidity regulation. However, after extensive testing, the humidors must be dismantled and packaged for delivery. “We need to ensure that our humidors can be operated effortlessly and function flawlessly at all times anywhere in the world. That’s why we opted for an easy-to-use, i.e. plug-and-play, system for connecting the electronic components. Another of our requirements was



remote maintenance, namely the capability to make adjustments, for example in response to changes in habits or climate, for instance with the help of intelligent AI systems,” explains **Karl-Heinz Gerber**.


For this reason, all sensors are IO-Link compatible and connected via an IO-Link master module. This module collects the data and transmits it to the controller via EtherNet/IP interface. The advantage of this IO-Link communication is that it not only makes it possible to use the controller to set parameters for the sensors, but also provides an insight into the sensor. For example, it makes it possible to read the sensor’s minimum and maximum values. The diagnostics parameters saved in the sensor can also be called up using the controller, which allows for quick, precise analysis in the event of a fault. Devices installed in the humidors, such as ventilators or lighting, are also controlled via the IO-Link master. The advantage here is the standardised M12 connectors. Neither the assembly

All components are connected using standardised M-12 connectors.

nor the replacement of components requires an electrician – all you need to do is screw connectors into the module, which makes wiring errors impossible.

Everything from a single source

Dirk Scheffler, Senior Field Technical Sales Engineer at ifm, played a significant role in the implementation of the control technology and the development of the software: “All of the automation components needed to come from a single source. That’s why we chose the ifm edgeController as the central control unit. This unit meets all of Gerber’s key requirements: simple wiring, deep diagnostics both during commissioning and for the end customer, attractive visualisation and the option of remote maintenance.”

A man wearing a white t-shirt with red suspenders and safety glasses is working on a wooden cabinet. He is looking at the interior of the cabinet, which is illuminated with warm yellow light. The cabinet has several shelves and a door with a keyhole. The man is holding a yellow pencil in his mouth.

Top-class craftsmanship for sophisticated, unique pieces.

Past measurement readings can be displayed clearly on the widescreen display.

A truly multitasking centrepiece: the edgeController

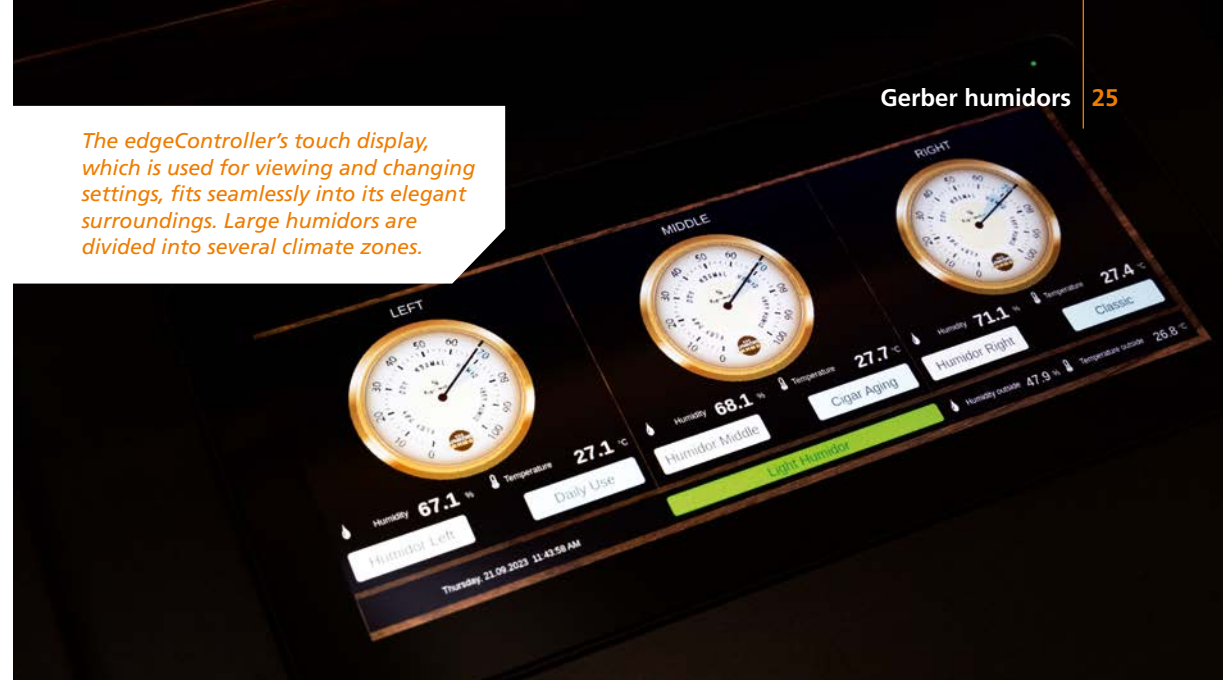
ifm's edgeController is much more than just a conventional PLC. The eye is immediately drawn to the impressive 12.3-inch graphics display on the top of the device, which has a resolution of 1280 x 480 pixels to enable sophisticated visualisations. In its humidors, Gerber has chosen a photorealistic display in which the key measurement, humidity, is stylishly visualised on a virtual analogue hygrometer. Users can also choose between different views, for example to look at past measurement readings or change the settings.

The actual program processing is handled by a powerful 1.3 GHz quad-core processor which operates at full performance at ambient temperatures of up to 60 °C. CODESYS V3.5 is used for programming.

One of the edgeController's outstanding features is its extensive connectivity. Either as an IT gateway or as a link to the cloud: The edgeController can transmit the recorded and prepared data to the most common cloud platforms such as AWS, Microsoft Azure, Google Cloud and AnyViz.



The edgeController's touch display, which is used for viewing and changing settings, fits seamlessly into its elegant surroundings. Large humidors are divided into several climate zones.



In addition, the edgeController speaks the leading standard digitalisation languages such as OPC UA and MQTT. Industrial Ethernet protocols such as EtherCAT, EtherNet/IP or Modbus TCP can be used to collect and process data in real time.

Dirk Scheffler explains another feature that is important to Gerber: "The edgeController is ifm's first product to feature an automation server. So, if any problems arise, you can easily access it via remote maintenance. All you need is for the edgeController to be connected to a router via an Ethernet cable, for example to a router."

This way, the IO-Link infrastructure makes it possible to take a look into every individual sensor, which enables detailed and accurate (remote) diagnostics. If major adjustments are required, Gerber can also carry these out via remote maintenance. "Another advantage of the integrated automation server is that it makes it easy to install updates," adds Scheffler.

Reliable power supply

One important aspect is voltage fluctuation. In some parts of the world, the power grid is not as constantly stable as in Germany. In this regard, ifm power supplies offer a crucial advantage by providing a sufficient buffer in the form of a broad input voltage range of 110 to 300 V AC, which largely compensates for voltage fluctuations and thus ensures that humidors can operate continuously. Moreover, the power supplies are intelligent, using IO-Link to communicate diagnostic values such as output voltage, load currents, power supply quality or the cause of automatic shutdowns in the event of a fault.

Integrated electronic fuses provide additional protection against overloading and short-circuiting. The fuses can be reset via IO-Link.

Other separate electronic fuses in the secondary circuit provide additional protection by allowing individual components to be switched off selectively in the event of a fault. These fuses are also IO-Link compatible, which enables comprehensive diagnostics using the edgeController in the event of a fault.

A resounding success

This project represented a premier for both Gerber and ifm, because it was the first time the edgeController had ever been used.

Karl-Heinz Gerber sums up positively: "Together, we've done a lot of development work. The software needed to be developed from scratch, often even outside regular working hours. It's fantastic when you're passionate about a project. ifm also provides first-class service. We can rely on their support team responding immediately. We have done a lot of development work in the last few years and all I can say is: sensational. I hope that this success continues."

Conclusion

This project impressively demonstrates the symbiosis of top-class workmanship and high-end technology. It shows that industrial automation technology also proves itself an exclusive environment and this synergy is what makes these humidors the perfect feel-good product for cigars.