

# Case Study

## Pro-face revolutionizes Combo-HMIs using acontis Hypervisor Technology



**Pro-face** is a leading provider of Human-Machine Interfaces (HMIs) and Combo HMIs for industrial automation. Since the 1980s, Pro-face has been a trusted partner for customers worldwide, offering innovative solutions for visualizing, controlling, and monitoring machines and processes.



Pro-face wanted to take their combo HMIs, which combine logic control and graphical HMI in one device, to the next level. Their existing models faced limitations in complex applications and due to hardware availability.

Pro-face aimed to create a new generation of HMIs with a focus on:

- **More performance:** To address the ever-increasing size and complexity of machines
- **More flexibility:** Providing out of the box usage of manifold applications.
- **Guaranteed reliability:** Independent operating systems to prevent any interference between real-time control and graphical user interface or IoT components.
- **Future-proof:** Quick and ongoing support of new hardware and new applications.

### The Challenge: Combining Flexibility with Reliability

The challenge was to seamlessly integrate the user-friendly Windows environment for HMI, as well as IOT & Cloud applications with a real-time operating system for reliable and fast control. Pro-face's existing combo HMIs lacked the ability to effectively run multiple operating systems, thus preventing the quick and reliable consolidation of control and HMI that was needed.

### The Solution: acontis Real-Time Hypervisor

After some research, Pro-face identified the RTOSVisor from acontis technologies as their preferred option and began collaborating with acontis on their project. In addition to providing technology and ongoing support, acontis offered a full range of consulting and services to help Pro-face to successfully complete the project, including:

- Fully understanding Pro-face's specific needs from the beginning on to consult Pro-face to realize the best solution covering all requirements starting from architecture.
- One single point of contact at acontis during the whole project – from the initial contact, through architecture, realization and support
- Consulting on potential technical solutions for each challenge uncovered by Pro-face - beginning in the architecture phase: either via email, documentation, or web calls with in-depth exploration of the system architecture.
- Pre-qualifying the hardware selected by Pro-face for optimal performance
- Developing Pro-face-specific multi-touch drivers



*Our existing COMBO HMIs are perfect for many applications, but have some limitations when it comes to managing large number of I/Os. In addition, it is an ongoing task to incorporate and update features for video-support, PDF viewing, or integrated web browsers"*

**Jean-Charles Emery**  
Product Application Leader at Pro-Face



The **Pro-face IPC Hypervisor** combines a graphical machine interface and a real-time controller on one HMI system

One of the main efforts of the project was the realization of seamless multi-touch integration. The focus is offering features that provide unique usability and benefits with the new IPC Hypervisor specially for usage in industrial applications – which means that the touch-screen also is accessible a wide temperature range and thus shall also allow the operation without as well as with gloves.

As data of a “classic mouse input” differs significantly from multi-touch, gesture-enabled touch-display input, additional functionality is required in the drivers to filter and pre-process the input data – with the target to provide correct values to the different operating systems and applications. This also affects the acontis RTOSVisor, as the correct forwarding of keyboard and mouse data requires filtering of data for the real-time Linux operating system and the RTOSVisor management console but unfiltered data for the graphical interface on Windows.

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**Jean-Charles Emery**  
Product Application Leader at Pro-Face

“acontis provided outstanding consulting and guidance in the beginning to be able to select the best solution and also served us with best-in class support during the project. For us, it was good to have the same contact persons during the whole project: Everything from one hand that also understood our needs. The direct contact to the acontis experts helped to get immediately answers that were on point and easy to understand.”

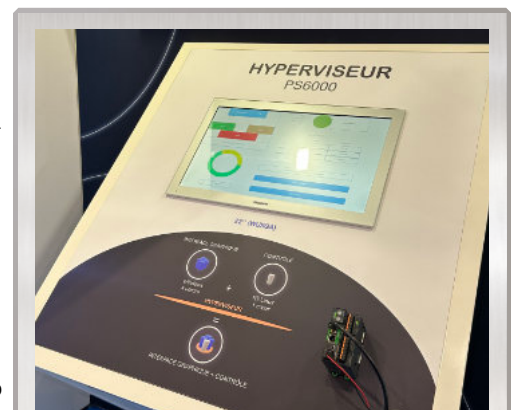
## Overcoming a Hurdle

During the critical phase of preparing a product demonstration for a customer, an error caused the entire system to fail one evening. The engineers could not identify the root cause and were running short on time as the presentation was planned for the next day. They reached out to acontis technical support via email, and acontis responded immediately and was able to solve the issue quickly during a web meeting via remote access to the demo unit. The acontis expert checked all critical elements and quickly identified and removed the root cause: a typo in a configuration script that resulted in a system halt during boot-up.

## The Results: A New Milestone in HMI Technology

By using acontis real-time hypervisor technology, Pro-face successfully finalized their new IPC Hypervisor, achieving a breakthrough in combo HMI + Controller devices, with unprecedented flexibility, performance and reliability:

- **High-Performance Controller combined with flexible HMI:** The system combines a real-time Linux with RT-Codesys kernel as controller for powerful automation. It also features a Windows-based HMI for a familiar user experience. This combination allows the realization of flexible and powerful controllers with access to many I/Os and providing simultaneous user access to the famous Pro-face graphical user interface. Customers can even run additional software for data analysis, cloud connectivity, or programming.
- **Unparalleled Reliability:** The IPC Hypervisor ensures that both operating systems run independently, preventing any interference or disturbance in operation, thus enhancing system stability and security.
- **Ready-to-Use Solution:** Pro-face delivers a turnkey solution – the IPC Hypervisor “ready to use” out of the box.
- **Service Continuity:** The acontis real-time hypervisor enables uninterrupted service – for example with independent software or operating system updates.
- **Long-term availability:** The para-virtualization features of the acontis RTOSVisor is a key benefit, as the application and the operating systems run on an “virtualized” hardware – enabling an easy upgrade-path to future CPUs and interface systems.



The **Pro-face IPC Hypervisor** premiered at the *Global Industrie 2023* in Lyon, France in November 2023

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“The acontis real-time hypervisor allows us to make the next step in terms of scalability with our combo HMIs – enabling us to realize a future-proof solution for our customers”

**Jean-Charles Emery**  
Product Application Leader at Pro-Face

## Conclusion

When it comes to stability, reliability and compatibility, **acontis technologies proves to be the right partner** who not only understands your needs but also **provides unwavering technical support**, which can be a game-changer for your project.