Siemens ID key-operated switches replace need for passwords

C T Systems (UK) Ltd are specialists in systems integration and have been a Siemens Approved Integrator for more than 25 years. The company, which was founded in 1993 by Chris Haigh, Managing Director, uses Siemens automation products to offer its customers a total solution across operations such as tool making, process lines, motion control, material handling and support service.

The company has built an excellent reputation for being an innovator in the field of motion control automation, but recently encountered a growing problem with password access to human-machine interfaces (HMI) – a key element in many of the company’s latest projects.

The problem

HMIs are dashboards that act as an interface between a user and a machine or device. They are designed to present information about the status of a process to the operator in a graphical format. The problem C T Systems found was that their customers were often forgetting the passwords that enabled them to access certain parameters within the HMI, so would phone the company for a reminder – whatever the time.

Chris Haigh, says: “With the very best of intentions some customers failed to keep a record of the passwords and would become reliant on me for a reminder. I was getting phone calls at all hours which, of course, wasn’t great for me or the customer who – quite rightly – wanted a quick answer to their question.”

The best solution to the problem seemed to be one where the need for passwords was eliminated and the user accessed the HMI with a personalised authorisation instead.

The solution

As a valued integration partner, C T Systems aims to use Siemens products across all of its projects, so the first conversation for the company to have in terms of finding a solution to their problem was with Martin Brown, Product Manager for Siemens in Manchester.

Green key stands for authorisation or switch position 1, yellow for 2, red for 3, and blue for authorisation level 4. With the IO-Link version an additional white key can be configured to the customer’s requirements.
Martin says: “The solution we suggested was for C T Systems to start using Siemens ID key-operated switches from the SIRIUS ACT series, which use electronic locks instead of conventional mechanical locks. The switches have a level of customisation that allows the user to set authorisation for machine access, and the associated keys have a radio-frequency identification (RFID) chip that makes them uniquely identifiable. The key and switch are connected by a stable radio link and don’t come into contact at all with the HMI.”

The SIRIUS ACT ID key-operated switches are designed to deliver a level of flexibility through four digital outputs that can be freely assigned and used successfully for control purposes. Varying levels of authorisation are represented by four separate – and different coloured – keys, and the customer also has the option of an additional white key that can be configured entirely to their specifications. Once a key is inserted, the key-operated switch enables corresponding authorisations.

With two different versions of the ID key-operated switches available, C T Systems were able to offer their customers the option that best suited their individual needs. The first version can be used autonomously and the second communicates with the controller via IO-Link, the industrial communications networking standard used for connecting digital sensors and actuators. The IO-Link product allows registration and precise allocation of authorisation levels.

C T Systems, to date, have used the ID key for two of their projects and plan to use it as a standard item for suitable projects in the future.

Martin Brown, Siemens, says: “Cummins Turbo Technologies and TrakRap are now both using the ID keys for HMI access. Cummins opted for the standard version due to their site not having an available IO-Link, while TrakRap use the IO-Link version and are planning to use the configurable white keys for a specific customer of theirs. Both are happy with a flexible solution and no one has to remember a password.”

The benefits
As well as flexibility and customisation as core benefits for C T Systems and their customers, the solution also offers a level of security and usability that a password reliant scenario doesn’t make available. If the ID key is lost, systems remain secure as the key is simply blocked and replaced, and the individual access levels act as a time stamp to see who has used the HMI and when – offering additional security. It is also possible to detect when a key has been inserted on the PLC (programmable logic controller) side via a monitored output.

From a safety and quality perspective, operation, downtime and maintenance information can be recorded with the aid of a database.

C T Systems have been so impressed with the product that they have a rig on site that they now have an IO-Link ID key that they use for testing and writing software.

Chris Haigh says: “C T Systems can look to use this technology to enhance most jobs. It’s a much improved solution in comparison to standard passwords and one that we hope to use for future projects where they use HMI with logon.”

Martin Brown says: “We’re really pleased with the response from C T Systems. We have a relationship with the company that spans decades, so we’re always happy when Siemens introduces a product that will benefit both them and their customers. Although the technology is still relatively new, it opens up options for other applications such as, when the signals are in the PLC, it can be used for other functions like switching on options for specific features.”

Use SIRIUS ACT ID key-operated switches to implement as many as 50 different authorisations.