



“In the framework of the revamping of our control/command installation, InTouch was the obvious choice because it had been used successfully on other Legrand sites. We wanted to push the envelope further, and adopted the Wonderware System Platform”.

Michel Gatinois,
Responsable du bureau d'études
'process extrusion', Legrand

Legrand Adopts the Wonderware System Platform

by Wonderware France

Goals

- Revamping the supervision of a powders' production unit for the manufacturing of cable trays;
- Simplifying the use of the control station by keeping manual data entry to a minimum;
- Editing production reports and making them easily accessible;
- Being able to carry out operations on the supervision application in the event of minor modifications being required.

Challenges

- Assimilating the Wonderware tools in order to work efficiently with the integrator;
- Scrutinizing the entire existing supervision application and adding new functions, taking into account requests formulated by all departments concerned in the factory;
- Meeting very short implementation deadlines;
- Providing secure operation in the event of the 'loss' of a supervision station.

Solutions and Products

- Wonderware Equipment Operations Module;
- Wonderware Historian Client;
- Wonderware InTouch HMI;
- Wonderware System Platform.

Results

- The control stations are more user-friendly;
- The recipes are centralized on a single server and are easy to update;
- Thanks to the production reports, it is possible to highlight process malfunctions and envisage process upgrades;
- It is no longer necessary to call in the integrator for making modifications to the supervision application.

Sillé le Guillaume, France - Among the billions of electrical switches and plugs installed around the world, one in five is a Legrand product. The site at Sillé le Guillaume, some 30 kilometres from Le Mans and known locally by the name of Inovac, employs around 550 and manufactures electrical cables and cable trays. In 1995, it underwent major expansion with the creation of the Plinthelec factory. Cable tray manufacturing centres exclusively on the manufacturing of plastic cable ducts. The know-how for this resides essentially in the composition of the powder used on the extrusion lines, which determines the physical and mechanical specifications of the cable trays. Prior to the creation of Plinthelec, Inovac used to subcontract the manufacturing of the powder. The extension of the plant justified the installation of an internal production line.

No Process Modification

The process is fairly simple. It consists in carrying out dosing operations (by weighing) and mixing the raw materials (chalk, PVC, various additives, etc.). There are around a dozen basic production recipes, to which new ones may occasionally be added for testing new compositions developed by the engineering and design department. The basic materials are stored in large silos, visible outside the factory walls. There are two independent dosing/mixing lines. The mixing is done mechanically. This mechanical action generates a progressive rise in the temperature of the product. When the desired temperature is reached, the mixing is stopped and the mixture is transferred into a vat, then into one of the eight storage silos (each of which corresponds to a particular recipe). These silos supply the various extrusion lines. Now in place for almost 15 years, the process is well established. The architecture deployed until now was entirely traditional, with programmable controllers (PLCs) executing the programs corresponding to the recipes, surmounted by a supervision PC for control and command. In 2006, after 10 years of fine and loyal service, these PLCs were to become obsolete. It therefore became a matter of urgency to replace the control/command system.

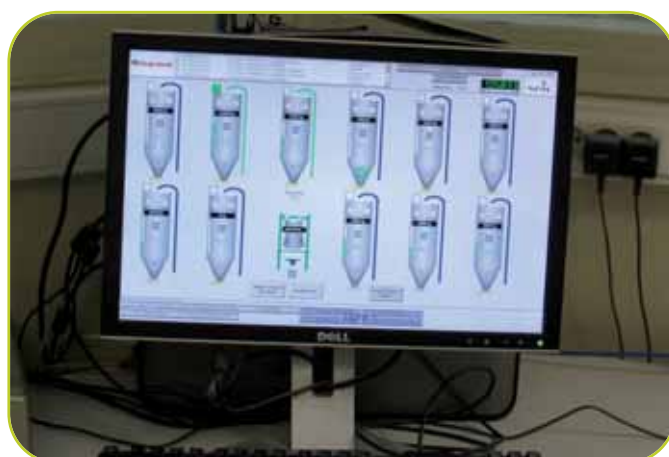
InTouch HMI, a Strategic Choice... Extended by the Wonderware System Platform

When Inovac decided to take the leap (in 2007), there would be no question of making a clean break

with the past. The global architecture has been perpetuated, with three PLCs: 1 for each of the two mixing lines and a third for the common elements (transporting materials and storing mixtures). As far as supervision is concerned, major changes were desired. Inovac was looking for an open-source solution, which was not the case with the software in place at the time. For its choice of supervision software, Inovac did not have far to look.

"The decision to choose InTouch HMI (Human-Machine Interface) from Wonderware was made quickly, since it had already been successfully deployed by Planet-Wattohm, a sister company of the Legrand group. Since InTouch had been opted for so early in the proceedings, Inovac wasted no time in getting trained on the software, with the dual objective of, one, being capable of holding a constructive dialogue with the integrator tasked with developing the application and, two, being able to make adaptations and modifications themselves once the application was installed." says Michel Gatinois. *"As well as during the training on InTouch, we had a very constructive interchange with Wonderware"*, continues Gatinois. *"In this way we were able to find out all about the Wonderware System Platform, and we soon decided to adopt it for hosting our manufacturing recipes along with our history and traceability data. Thanks to this approach, access to information has become far easier (via a single workstation connected to the Internet)."*

Wonderware has also been involved in defining the information architecture and generating the various operating modes (to compensate for any problem with one of the servers). For the choice of integrator, Inovac invited bids exclusively from companies recommended by Wonderware, on



Manufacturing process.

account of their skills with these tools. The job ultimately went to Spie (Laval agency), which was chosen for its competitive pricing, proximity and local skills on Wonderware InTouch HMI software.

Rollout was spread over four months, with regular progress reports and platform tests with the integrator involving the new PLCs. It was vital to validate as much as possible upstream, since installation proper needed to take no more than a maximum of five days.

High Availability with no Information Loss

The architecture revolves around five Wonderware workstations: two supervision server stations, two InTouch HMI and the Wonderware System Platform. In normal operation, the PLCs execute the recipes posted on this platform via the command transmitted by InTouch HMI. The PLCs convey the process data to InTouch, which in turn transfers this data to the platform. The production, quality, maintenance operators, etc., can then access this data in order to generate production reports. Inovac is equipped with the development software of InTouch, plus a runtime license. There are two workstations in the control room, each of which is assigned to one of the two dosing lines, thereby providing better oversight for the line managers and ensuring that there is redundancy. The information exchanges with the process PLCs take place via Ethernet. Two thin clients (Panel PCs) are also linked to this Ethernet network and physically located in the areas where the operators need to intervene manually on the process.

The Wonderware System Platform is physically hosted at Limoges (headquarters of Legrand) and connected via a VPN to the InTouch HMI supervision workstations.

Ultimately, this platform will also be used on the Senlis site, which implements the recipes developed at Sillé le Guillaume. This installation has been designed to limit the consequences of breakdowns. If one of supervision workstations or the PLC Ethernet connection should fail, redundancy of the supervision application to the other workstation automatically kicks in. If the connection with the platform is interrupted, production may continue since the last recipe is



Electrical switches.

automatically saved on the supervision workstation (and updated every half hour).

Benefits Already Accruing!

The new installation offers considerable advantages compared to the previous one. First of all, the recipes are centralised on one server, thereby facilitating their updating. They are also easy to access. Manufacturing launch is facilitated by improved user-friendliness: operators no longer have to worry about the composition of the recipe that the PLC has to execute. Yet above all it is possible to obtain all the inventories (raw materials stock status, silo levels of finished products) and production reports that can be consulted by authorised users (several authorisation levels depending on user type). *"These reports constitute a major step forward,"* Michel Gatinois explains: *"For example, if the temperature rise of the mixing operation proves to be slower than anticipated, correlations can be made, the cause detected and any problem corrected."*

And tomorrow? *"Certain functions will be added over the coming months to the Wonderware System Platform. Operation and sharing of the production data saved in the various databases will be extended over a larger scale via the Wonderware HMI Reports tools. In the none too distant near future it is envisaged that the recipe module of the platform will be used by the Senlis site, and that the platform will be connected to the enterprise ERP management software. Another possibility, thanks to this platform, is that the developments already implemented may be used to upgrade the process (adding a third mixing line, for example),"* Mr. Gatinois concludes.

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