NEW ‘CATS’ SYSTEM HAS STOCKLIN PURRING

“It’s all about reducing the risks as far as possible. The more stringent and wide ranging the testing pre-commissioning, the fewer surprises there will be when the systems and equipment go live and the nearer the project will be to that elusive goal of perfect performance in all circumstances.” So says Steve Ward, Systems Manager, at Stocklin Ltd.

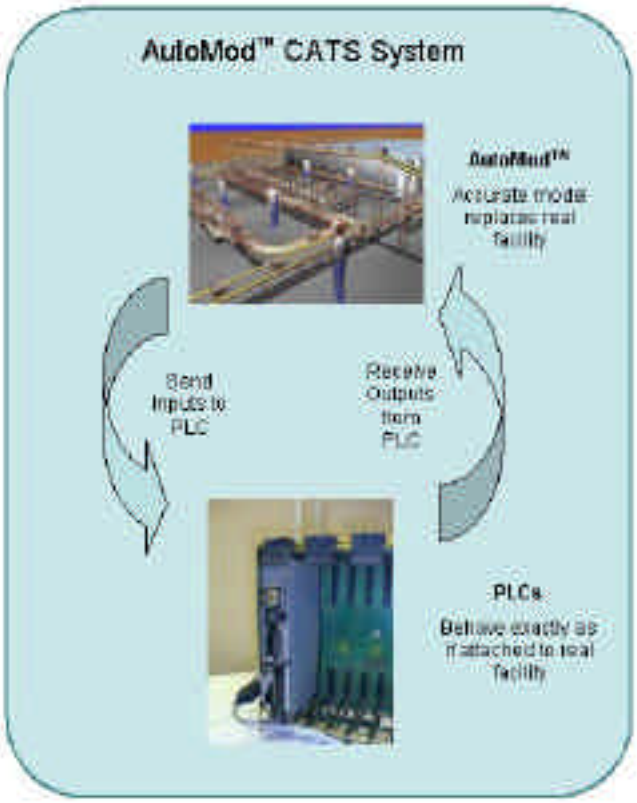

Diagram illustrating how the AutoMod CATS model can replace actual plant for control system testing purposes

Based in Stevenage, Hertfordshire, Stocklin Ltd is the UK Materials Handling and Storage Systems subsidiary of the international Stocklin Logistics AG Group, headquartered in Dornach, near Basle, Switzerland. The Group, employing over 500 people specialises in the worldwide turnkey design, manufacture and installation of automated materials handling systems. The UK subsidiary is structured to provide services which include:

- Problem analysis and system planning
- Turnkey installations
- Project management & training
- Post contract support & maintenance
- Refurbishment

The Stocklin client base is impressive, including as it does many leading blue-chip organisations such as Coca-Cola Enterprises, Woolworths and Computacenter. The warehousing projects it undertakes are frequently large and highly complex incorporating many and on occasion all, of the following :

- Multi-purpose carton & bin conveyor systems

- Pallet conveyors, transfer cars; high-speed shuttle cars and elevators
- Order picking systems
- Automated high-bay stacker cranes; fixed path and aisle changing
- High capacity mini-load cranes for cartons and bins
- Warehouse Management & Control Systems.

The company normally acts as Principle Material Handling Contractor, responsible for the design, specification and installation of both in-house and third-party equipment and systems which feature an ever growing range of PLCs (programmable logic controllers). The PLCs that control the installed equipment need to be programmed for each application and are therefore a critical element in a successful operation

“At Stocklin we are continuously looking to improve and extend our testing facilities and have long used simulation technology to guarantee the accuracy and robustness of our materials handling and storage equipment solutions.” Steve Ward explains. “An accurate simulation model, which incorporates all of the materials handling systems together with data on volumes, speeds and the proposed control philosophy, provides the very best method of testing and demonstrating the project solution. However, in the past, we had then to build a separate system using different software, to test the PLC software. This was time consuming and results were not always easy to demonstrate.,”

“Some time ago,” he continues, “we mentioned to our simulation providers AutoLogic Systems Ltd, the possibility of combining the testing somehow, by using a single all purpose model. It seemed the ideal solution. If they could manage to incorporate a gateway to the PLC logic into their software, it would enable us to re-use the initial project model, which, when the PLCs were connected, would emulate parts of or the entire project and allow the PLC network to run the operation utilising the model in place of the actual equipment. This would mean the PLC testing could be done on a screen, in an office environment, even in a remote location from the site if required, with the certain knowledge that results would be accurate. Both we and our clients could view every aspect of the operation, run “what if” scenarios and test the whole project performance under all circumstances in advance of commissioning. Results would be faster and changes could be made and tested on the model, quickly, easily and, most importantly, at a fraction of the cost if they had been discovered on site.”

“The guys at AutoLogic understood our requirements and were aware of new product at Brooks Automation Inc. the developers of AutoMod, designed to aid communications between AutoMod and control systems.” Senior Simulation Consultant, Harvey Craig paints a clear picture of what the new AutoMod CATS (Controls Analysis and Testing using Simulation) software encompasses. “A PLC works by looking at its inputs and depending upon their state, turning on or off its outputs. The user programs it to give the desired results. The principal seems, and indeed is, very simple, but what if the process required hundreds of switches and motors, each of which had to be counted and monitored separately? The exercise can very quickly become a minefield for mistakes and opportunities for error. When volumes are high and minutes of downtime on a production line, or distribution facility, equate to thousands of pounds, it is easy to see why thorough testing of the control system before commissioning offers the opportunity to save huge sums of money.”

“Building software models that can take account of complex specifications and enormous numbers of variables is our business.” Harvey continues, “So building the links between our AutoMod simulation model and the PLCs software was something we were happy to tackle. Brooks Automation Inc. has developed communications links through the generic communications standard OPC. This allows users to communicate with any manufacturer’s PLCs providing they use OPC, which all reputable brands do. Users of our AutoMod CATS system can create highly accurate models incorporating true scale graphical representations of the real world system, linked to PLCs, such that the PLCs behave exactly as if they were connected to the real equipment and management systems. The resulting “Emulation” can be viewed on the computer screen and tested under any circumstances the client demands.”

The AutoMod CATS system was demonstrated to Steve Ward, who was delighted with the development and immediately decided to pilot the system at Stocklin. “I tested the system in anger on a purpose built model, utilising five pallet stations using different PLCs and was very satisfied with the results. We had to make some changes to the way in which we built our initial model, to take into account the fact that we would be running it as an emulation of the hardware as well as a simulation model. But once we had established the differences required when building the model, it was quite straightforward to progress from simulating the handling and storage operation to emulating the PLC application. The savings in time will be tremendous and the benefits in the accuracy and reliability of the test results will be significant. The beauty of the system is that the client can witness the control system testing on the screen and be totally confident in the outcome. “

“Training is also improved. Operators can be trained safely and more efficiently off site at convenient times and locations before the implementation goes live.”

To summarise, Steve Ward has no hesitation in recommending the system for future projects and concludes, "Not every aspect of a project requires this technology, items controlled by standard software, such as cranes and shuttle cars do not need testing to the same extent as bespoke equipment and systems. For example, using AutoMod CATS to test the conveyor systems, which will be unique to each project, delivers tremendous benefit. The resulting model allows the client to view the entire project controlled by both the initial simulation model for standard equipment and CATS for the specifically written PLC software. The flexibility of the system enables us to be highly selective about the PLC modules we test, significantly reducing the time spent creating a test environment. Our philosophy is to test, test and test again, to eradicate error and build confidence, to achieve a smooth, timely and successful implementation. I believe the AutoMod CATS system is a vital step in that process and one that will provide yet another competitive edge for Stocklin in our drive to stay ahead and continue delivering the very best results to our clients."

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