

Motor Control Unit: Rapid Link Ensures Growth

In search of an optimal solution for building machines and systems, Frans van Zaal Totaal Techniek came upon Moeller's Rapid Link System. The networkable and decentralised motor starters allow the complete factory installation of individual subsections of the conveying system. The individual mechanical sections and the mechanical switchgear thus form pre-assembled units that can be tested in the factory beforehand without the use of a PLC. Just the power cable of the Rapid Link unit needs to be plugged in the socket so that the drive can then be started in manual mode.

**FRANS
VAN
ZAAL**
TOTAAL TECHNIEK



Commissioning without a PLC

The motor protective function is already fully operative in manual mode – without the connection of a PLC and bus system. This was a key factor in Frans van Zaal's choice of the Rapid Link System. The safe manual mode enables the technicians at Frans van Zaal Totaal Techniek to already set the rollers and belts of the conveying systems concerned in the factory. Previously, Frans van Zaal had to carry out all these activities onsite, which was considerably more time consuming and expensive.

In addition to the pre-assembly and adjustment of the mechanical system, the Rapid Link System also enables the pre-installation of the electrical system: The light barriers for the conveyor unit can already be connected to the Rapid Link motor starters and tested at the factory. Frans van Zaal uses the interlocked manual mode of the Rapid Link System to test the light barriers. In this operating mode, the drive only transports the conveyed material in one direction until the corresponding light barrier is actuated. These light barriers can therefore be set during the factory commissioning phase for the conveyed material to be transported.



This work also previously had to be completed onsite in widely distributed systems. With system expansions often over 2,500 acres that wasn't a cost-effective solution as travelling working places had to cover long distances and required long setup times.

After pre-assembly and testing, the conveyor units are supplied directly to their destination onsite. This therefore eliminates the primary need for intermediate onsite storage space for electrical and mechanical equipment parts, since they are naturally already fitted to the functional unit. Onsite assembly therefore only involves the mechanical system and the erection and fixing of the unit. In terms of the electrical system, it is only necessary to connect the individual units via the power and data bus. However, Frans van Zaal Totaal Technik also stopped doing this in the conventional way but consistently used the flat cable bus and insulation displacement termination available with the Rapid Link System. A flat cable is simply run through the system, the sockets for the power and data bus are simply snap-fitted at the required locations. The possibility of installation faults such as "incorrectly connected cores", "phase reversals" or "short-circuits" is fully excluded.

THE COMPANY

Frans van Zaal Totaal Techniek is a company located in De Kwakel in the Netherlands, and was founded in 1968. It carries out its own development and production whilst using a number of technical products at the same time. Frans van Zaal combines internationally available materials handling systems with climate control systems and develops fully automated greenhouses. The automation of this kind of transport and production system is extremely complex and depends on the customer and their cultivation methods. The monitoring of the containers and the registration of plant development stages particularly involve a large number of technical requirements, both for the design and programming and for all the installation work. Each project is always unique and always new for every control and conveying system is custom built. However, the installation work was up to now extremely costly and time consuming when conventional technology was used.

Rapid Link reduces installation times

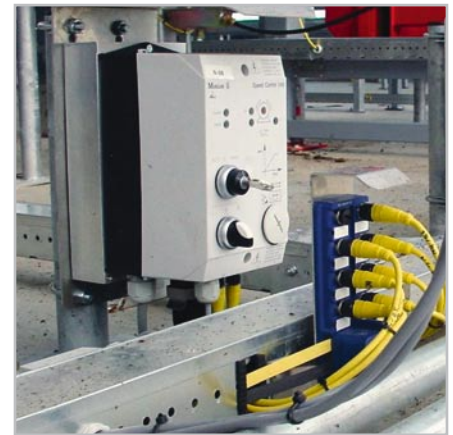
If it is found during commissioning that a drive is running in the wrong direction, the patented phase reversal switch of the Rapid Link System just has to be switched back so that the drive is immediately running in the required direction. Altogether, the factory pre-installation and adjustment concept reduces installation and assembly times at Frans van Zaal by approximately 25 percent. The use of the serial power and data bus – replacing many individual parallel power and data cables – resulted in further cost savings. In all, the Dutch company saved a total of 50 percent in installation costs. The impressive cost reduction was primarily due to the narrower cable ducts, the reduced expenditure for cabling, the savings in materials, as well as the new connection and commissioning concept.

Rapid commissioning

The introduction of the Rapid Link Systems, however, not only benefits Frans van Zaal but also their customers. Frans van Zaal's customers are not technical experts: Rapid Link Units have a standard design, are simple to install and maintain. When a malfunction is suspected, they just have to be replaced. This increases system availability and keeps downtimes to a minimum. The central diagnostics messages show the service technician the exact location of any faults that occur in the system. The decentralised messages located at the machine also guide the service technician exactly to the faulty drive and allow accurate troubleshooting. The drive cable fitted enables the mechanic to replace the faulty drive – even without an electrician. Even the exchange of a faulty Rapid Link Unit only requires a few seconds, by simply pulling out the connection plug and fitting in the new unit.

The integrated electronic motor protective function enables a Rapid Link motor starter to replace more than eight conventional motor-protective circuit-breakers. In other words: For drives up to 5A only one replacement device is needed and not eight different devices, as was previously the case. Thanks to the integrated connection options for light barriers

or limit switches it is no longer necessary to keep spare parts for additional I/O cards or modules. If a total failure of the control system or bus system unexpectedly occurs, the customer can still move the conveyed material with the interlocked manual mode of the Rapid Link System which runs independently of the control system.



Quicklink ID:

MS0521

CONCLUSION

In short, the conveying can be extended or reduced to the requirements at hand without any problem, and is generally easier to operate. Rapid Link frees up capacity enabling Frans van Zaal Totaal Technik to now invest the saved time in developing new processes and products. For managing director, Henk Peek, it is ultimately the key to success and the reason for his slogan "Who walks ahead shows the way". van Zaal has offered its customers innovative automation solutions for many years – a decisive competitive factor not only in today's economic climate. As a project partner for Frans van Zaal Totaal Technik Moeller was able to increase the economy and availability of their systems using the Rapid Link System.

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