

Flexibility Thanks

To take over the production of another site at short notice, Basell Polyolefine GmbH needed to fit out its Hoechst plant in three months and install the Foundation fieldbus system. Central elements of the new installation are the Turck power conditioners and multibarriers.



The production installations for polyethylene at the Frankfurt-Hoechst Industrial Park have been running in Frankfurt for more than 50 years. What started under the management of Hoechst AG is now run by Basell Polyolefine GmbH. The Basell Group was founded six years ago from a joint venture between BASF and Shell, and is one of the leading suppliers of polyethylene, polypropylene, high-performance polyolefins as well as polyolefin catalysts. Basell supplies customers in over 120 countries and has production facilities in 21 countries on five continents. Its headquarters are based in Hoofddorp in Holland, near Amsterdam. Over 6500 employees made up of 35 nationalities work for the company.

Production in Frankfurt was actually meant to be run down at the beginning 2006 by moving plant sections to Poland. However, an accident at the Münchsmünster plant in December 2005 stopped this plan. Rapid help was needed since the installation was completely destroyed by a devastating explosion. The original plan was changed quickly and line 2 at the Frankfurt site was modernised instead of being dismantled. Now a highly flexible installation is in operation, producing more than 30 different products including all the products from Münchsmünster.

For Harald Liebisch, team leader for automation at Basell in Frankfurt, an exciting phase started in December 2005 when the polymerisation plant had to be converted in record time: "Once the first decisions regarding the new installation were made by the end of the year, everything started very quickly", Liebisch summarises. "We were able to bring the plant up to the current state-of-the-art within three months and equip it with Foundation fieldbus (FF) lines." Liebisch had already gained his first experiences with multibarriers, although these were not satisfactory in all aspects. When the Turck solution was presented the decision was made very quickly: "We were immediately impressed by the full galvanic isolation of the Turck multibarriers," the automation manager explained, "it was exactly this feature that was missing before."

The Turck multibarrier MBD-49-T415/Ex allows the installation of Ex-i drop lines up to 120m in length. The full galvanic isolation is provided both between the trunk line and the output circuits as well as between the four output circuits. This prevents compensation currents due to potential differences. The integrated short-circuit protection comes into action in the event of a short-

circuit at a fieldbus node. Only the output concerned is disconnected – the trunk line and the other outputs of the affected fieldbus segment remain in operation.

The actual planning could be completed just as quickly as the decision process thanks to the configuration tool that Turck had developed for this purpose. "We used the tool to make a preliminary plan of the segments. The length of the fieldbus lines, the division of the fieldbus barriers and the assignment of inputs to multibarriers – the configuration tool allowed us to define all these points very quickly," Liebisch explained.

Now nine fieldbus lines are in operation at the Basell polymerisation plant. Power conditioners connected upstream of each one are provided for supplying the fieldbus segments. The further expansion of the FF network to 15 segments is planned within the scope of this project. "We are very happy with the Turck products," Harald Liebisch says. "In addition to the galvanic isolation, their reliability and simple handling are outstanding. Since we have completely changed to Turck, we do not have any more difficulties. We therefore also intend to implement the next expansion stage with Turck products."



Despite the time pressure under which the project was completed and the absence of a test phase, the implementation of the new technology was largely trouble-free. Rapid support was only required once in the initial phase when the first line could not be put into operation. This was due to the insufficient power supply of the three multibarriers due to the internal power conditioners of the interfaces used in Frankfurt. These interfaces connect the FF segments to the ABB Symphony control system.

The problem could be rectified within a few days. "Turck helped us a lot with this. The short communication routes in the company were very helpful in this," Liebisch reflects on his experience.

to the Fieldbus

“Our problem was taken seriously and dealt with immediately. With the short implementation time available for the project it was very important that we found a solution for this quickly.” The multibarriers are now fed with external Turck power conditioners that not only provide enough power but also allow a clean separation between the interface converter and the fieldbus. The change to fieldbus technology has enabled the installation planners at Basell in Frankfurt to create the basis for a flexible response to market requirements. The speed at which the installations can be adapted has already been put to the test with the first FF project. The installation in the polymerisation plant had to be made operational as quickly as possible without a test phase.

With its high-performance power conditioners and multibarriers with channel-specific galvanic isolation Turck has provided the most suitable technology for the demanding Basell application. However, it was also the ‘soft facts’ – from the configuration tool to the easy handling to the prompt availability – which enabled the Mülheim fieldbus, sensor and interface specialists to make such an impression that Turck has also remained choice supplier for the planned expansions. By Markus Haller



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