

PROCENTEC



Snijders uses ComBricks in potentially explosive atmospheres on tankers

Snijders Intelligent Automation designs and manufactures electrical panels for many industrial and commercial sectors, including maritime. Snijders is responsible for designing, constructing, installation and commissioning of a finished system. Snijders recently fully automated and installed PROFIBUS in four newly built tankers. These tankers have various potentially explosive atmospheres for which ATEX directives apply. That is why Snijders used the ComBricks RS 485 Intrinsic Safety barrier modules by PROCENTEC. This allows for 24/7 remote monitoring of the PROFIBUS installation from a safe zone.

Snijders was recently commissioned to fully automate four newly built tankers by providing them with a complete cargo management system. This advanced system provides information on tank pressure, tank level, the discharge pressure and position of the ship on a single screen. The entire installation is based on PROFIBUS. According to product development engineer Herman Bouman, automation of these tankers required a special approach: "The tankers have been provided with several cargo tanks with large quantities of petroleum products, which seriously increases the risk of explosions. That is why these ships have

several potentially explosive areas. In order to prevent explosions, PROFIBUS installations in these atmospheres have to comply with ATEX directives. In addition, specific PROFIBUS installation guidelines have to be adhered to. So, obviously many issues have to be considered. Moreover, maintenance of these PROFIBUS installations in these potentially explosive atmospheres is very tricky. You have to take suitable measuring equipment and permits into consideration and whether or not the installation can be operational during maintenance. Generation of sparks has to be avoided at all times."

ATEX stands for ATmosphères EXplosives and comprises virtually all issues regarding explosion risks. Explosions can result in considerable material and economic damage and even serious personal injury. Therefore, the European Committee has drawn up rules to ensure safe working conditions in potentially explosive atmospheres. These rules have been laid down in directives ATEX 137 and ATEX 95. Since 2003 these ATEX directives have applied to all areas with an explosion risk which, therefore, also includes these tankers.

In addition, Snijders also had to consider the extreme weather conditions at sea. Herman Bouman: "During heavy storms the PROFIBUS cables on deck can easily be damaged, which seriously increases the chances of downtime with disastrous economic consequences. Once a tanker has moored, loading and unloading have to take place immediately. Staying berthed at quay is very expensive and time has to be used efficiently and downtime is absolutely not permitted. If a PROFIBUS failure prevents us from loading or unloading, the ship has to stay berthed at the quay for a long time, which easily amounts to thousands of euros an hour. In the worst case scenario loading or unloading is entirely impossible. If this concerns a load for a specific production process it is impossible to use it for anything else."

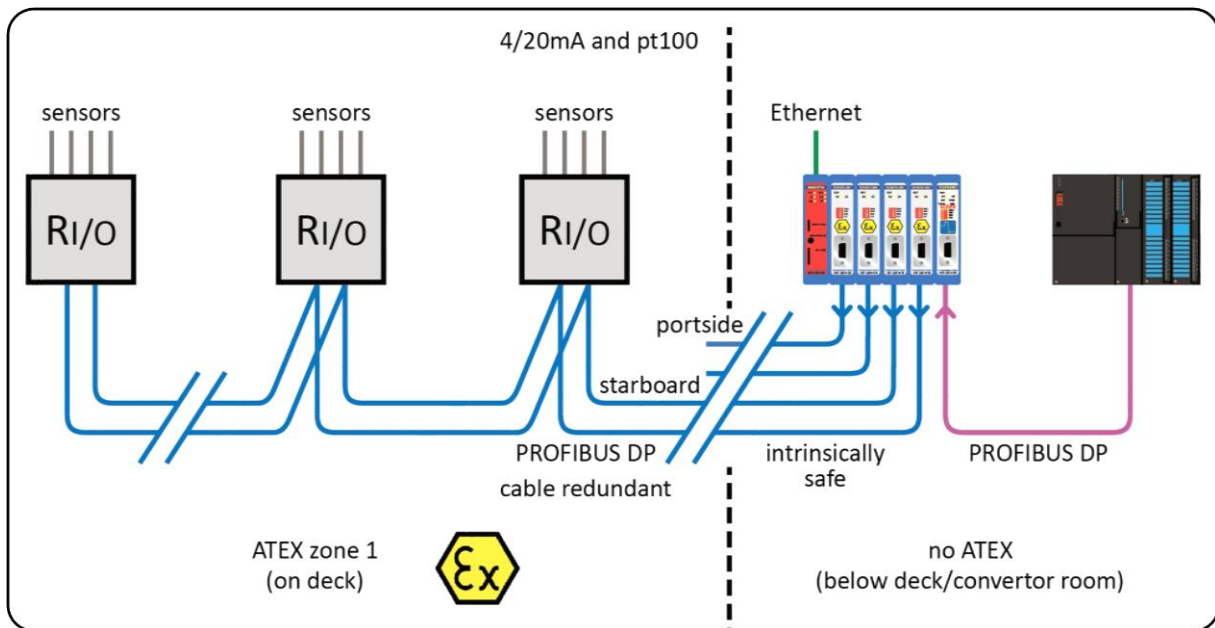
Looking for the best solution

In order to prevent failures in the PROFIBUS network, Snijders looked for the best suitable solution. Herman Bouman: "We were looking for a unique product that had to meet a number of strict requirements. It had to be, for instance, an intrinsically safe product suitable for PROFIBUS DP in potentially explosive areas. The signals from the deck sensors (ATEX zone) are received in a remote I/O cabinet, during which the generation of sparks has to be absolutely avoided.

Cable redundancy was another specific requirement. Due to the extreme weather conditions these tankers encounter, the chance of a broken PROFIBUS cable and, therefore, the chance of downtime is considerable. That is why we insisted on redundant installation of all PROFIBUS cables. This way all data from the remote I/O cabinet is transmitted to the convertor room safely and dually. By using cable redundancy a reliable installation is created and the risk of downtime is considerably reduced. If a PROFIBUS cable were to break, another cable takes over and the installation will remain operational. Finally, we were looking for a product to effectively look for failures in potentially explosive atmospheres and remote monitoring of the installation."



Herman Bouman shows that PROCENTEC ComBricks allows for remote monitoring of the PROFIBUS installation from a safe zone.



Schematic representation of the PROFIBUS installation in a potentially explosive atmosphere on the tanker.

ComBricks RS 485 IS Barrier

During their search, Snijders contacted PROCENTEC for assistance: “We have known PROCENTEC for some time now because we have taken several courses with them. PROCENTEC advised us to utilize the ComBricks RS 485 Intrinsic Safety barrier. This unique module is especially designed to create segments in potentially explosive environments. This product meets all specifications for PROFIBUS DP in intrinsically safe segments. One of the major advantages is that it allows you to constantly remotely monitor PROFIBUS installations from a safe zone. Recently, we have already been able to remotely trace and solve several failures. By means of a satellite connection it is also possible to view the status of the installation in a web browser. The scope images showed, for instance, that various plugs had not been connected properly. We have also showed these images to the PROCENTEC engineers. They have given us extensive advice on how to solve this failure. As a result of these scope images, much more information is available regarding this failure, which enables us to detect failures more quickly

and more effectively. The ComBricks modules can even be changed when the tanks are still full. Maintenance on the fly is now possible! In addition, ComBricks offers cable redundancy, which was exactly what we were looking for. The risk of a possible breakdown of the entire installation has been reduced to zero at the moment. Should a PROFIBUS cable break another one takes over. In addition, ComBricks offers the possibility to alarm the user if one of the redundant cables breaks, which significantly increases the reliability of the installation.”



“ComBricks allows us to remotely monitor the PROFIBUS installation from a safe area”

PROCENTEC collaboration

Herman Bouman: "We are very satisfied with the PROCENTEC products and services. PROCENTEC has a unique module: the ComBricks RS 485 IS barrier. This was exactly the product we were looking for. PROCENTEC helped us set up the PROFIBUS network and really listened to us during this process. Unfortunately, it is not always evident for companies to have technical knowledge of their products, however, PROCENTEC has the profes-

sional knowledge for a variety of issues. Where some companies immediately refer to the manual, PROCENTEC really anticipated our needs. They translated our requirements into the most efficient infrastructure, while support engineers were immediately available to answer any questions. Suitable and workable solutions for problems were available within 48 hours."



About Snijders Intelligent Automation

Snijders Intelligent Automation is the designer and manufacturer of high-quality electrical panels and has dozens of years' experience in On- & Offshore, Maritime and Mechanical Engineering sectors. Based on electrical issues, Snijders provides an assessment of the investment and the completion time. When the assignment is given, Snijders starts working on the detailed design, components are purchased and the electrical system is built. Snijders Intelligent Automation provides the design and actually builds and installs the system.

Further information: www.procentec.com

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