

Serial Data via PROFIBUS

Benefits of the SPI 3 Solution

- Integration of standard devices and systems with serial interface (RS232, RS422, RS485) in PROFIBUS DP
- Easy and inexpensive connection via interface / gateway
- No special software required for configuration / parameterization
- Applicable in existing plants as well as latest developments

The international PROFIBUS fieldbus standard has been adopted world-wide and forms the basis for many decentralized automation solutions. With currently more than 10 million nodes installed, PROFIBUS is the undisputed world market leader for fieldbus systems. This growth trend is to continue with its sharp increase into the future.

With such successful technology available and promising future prospects ahead, the scores of various standard products with PROFIBUS interface on the market come as no surprise.

However, there are always certain special products that are not PROFIBUS compatible and are not likely to be retrofitted to provide this feature. Still, these special products remain interesting for bus integration, raising the question if certain bus protocols can be implemented. But every attempt of furnishing a product with one or several interfaces means additional costs which do not pay off immediately or, in some cases, not at all. This is because, even until today, there is no one single optimum and system-independent communication standard, but several – even when a standard has been highly successful. Today's bus systems provide custom-designed benefits and as such have their legitimate place on the market.

Manufacturers, however, always face the same dilemma, as their products need to be compatible with the bus systems commonly used among their customers. On the other hand, customers are not prepared to pay more for a product only because it provides connectivity for a certain fieldbus. Small batch production, e.g. devices at various price ranges with a broad range of functions and dimensions, encounters particular problems. For different reasons, a high number of these products do not provide interfaces. In manufacturing plants, such devices are to be integrated into random combinations. To connect them to each other and to control them, a common standard that can be used by all devices is required. This standard often consists of an RS232, RS422 or RS485 interface. In a similar way, there are not only single devices but modern control and regulating systems performing their special tasks in a certain part of the plant which are required to exchange data with superior bus systems. These are for instance existing installations such as heating systems that have been designed as stand-alone systems and which shall now be integrated into superior systems with bus connection.

To overcome these system boundaries and exchange data properly between such devices or systems and the various bus systems, connection via gateway is a feasible solution. The concept of serial CP (communication processor) of Trebing & Himstedt provides a cost-effective solution to integrate serial devices into PROFIBUS. For connection, the SERIAL-PROFIBUS-INTERFACE SPI 3 has been developed. With the SPI 3, all devices with serial interface can be integrated into PROFIBUS easily and quickly as DP slave devices. Depending on the respective application, various protocols (free ASCII driver, RK512, 3964R, MODBUS RTU) and physical interfaces (RS232, RS422, RS485) can be used. In decentralized PROFIBUS installations, the SPI 3 replaces the serial interface in the PLC. The serial device can be connected to the PROFIBUS directly on site, i.e. there will be no separate cables for serial connection to the PLC, no additional converters or amplifiers, or transmission problems. A highly cost-efficient integration for example is the multiple usage via RS485 interface and MODBUS protocol, with up to 32 stations to be connected to one SPI 3. The SPI 3 is easy to install, parameterize and configure. No additional configuration program is needed; configuration is exclusively done via the respective PROFIBUS DP master. Standard example programs are available for the frequently used S7-300 SIEMENS DP masters. Another key benefit is the availability of all diagnosis functions specified by standard and enhanced diagnoses.

For both planners and users, this solution provides access to the broad and unrestricted choice of devices and suppliers. Due to the exchangeability of compatible devices and standardized engineering, long-term protection of investment is guaranteed. The SPI 3 has proved its worth in numerous applications. These include simple implementations such as connecting text displays or bar code scanners as well as complex applications like integration of identification systems, weighing machines and controllers.



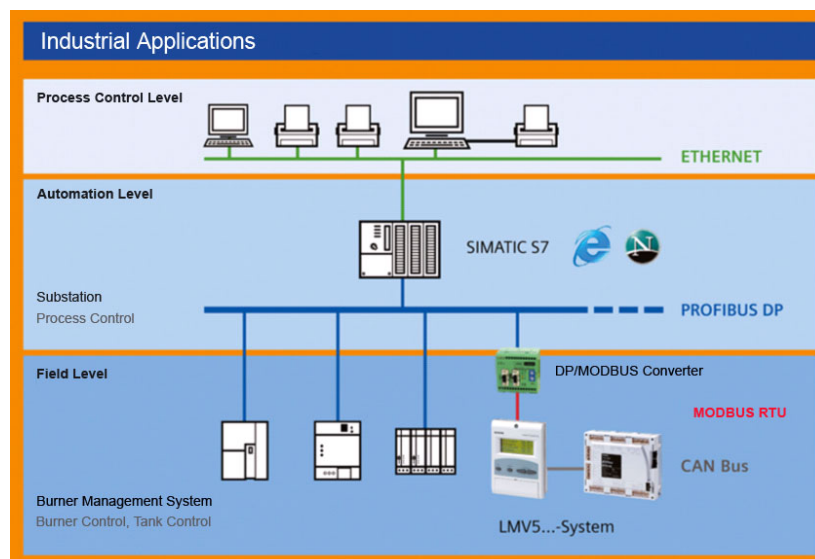
Benefits of the LMV5 Solution

- Control and monitoring of fan burners in medium and high performance ranges
- Easy, user- and service-friendly operating and display unit
- Integrated autonomous performance control
- MODBUS interface as standard design

LMV5 – Burner Management

The LMV5 burner management system developed by Siemens Building Technologies is an innovative system for control and monitoring of fan burners in medium and high performance ranges. They serve for heat supply of large building complexes and for process heat generation in industrial applications. Especially in large buildings, central control of heating, air-conditioning and ventilation technology is gaining ever more importance. Efficiency with high boiler outputs is becoming a key expense factor. In the field of process industry, high availability and fast reaction are of top priority. The LMV5 burner management system can be integrated into various superior process control systems via an open, standardized communication interface. Crucial actual and reference values of the plant can be continuously monitored; information such as fuel counter, operating hours and parameter settings can be read out and evaluated directly at the burner management system. For quick and targeted diagnosis, all relevant plant data as well as fault histories of the latest failures can be transmitted. At the same time, diagnosis data are displayed at the indicating device of the equipment.

The LMV5 burner management system provides a MODBUS interface as standard design. In combination with the Trebing & Himstedt SPI3 gateway, it enables efficient and cost-effective connection to the PROFIBUS as well as integration in, for example, SIEMENS S7.

**Trebing & Himstedt Company Profile**

In the field of industrial communication, we are specialists for continuous, business-wide access to process and production information. For more than ten years, we have been providing solutions for configuration, parameterization and diagnosis of fieldbus systems. As members of the PROFIBUS User Organization, the European Steering Committee of the OPC Foundation, PACTware and FDT Group, we are actively involved in the most important boards and panels. In the last few years, our business activities have been consequently extended into the fields of Asset Management, Production Portals, Management Information Systems and SAP. Among our customers are leading international businesses from all fields of process and manufacturing industries.