A faster way of getting top-class quality on the road
Vehicle commissioning and electronic testing with SIDIS Pro
Maximum quality and optimized processes

If challenging quality targets are to be met, despite tight deadlines and the growing complexity and functional diversity of vehicles, optimization of the entire process chain is essential. For this reason, the Volkswagen plant at Wolfsburg, Germany, has opted for SIDIS Pro from Siemens for the commissioning and electronics testing of the new VW Golf.

One system for all applications
SIDIS Pro is a vehicle commissioning, testing and data management system for the automotive industry that can be utilized in many areas: in the dashboard and door production, in the filling station, at the end of line and in the test lines for controlling and checking the wheel alignment and brake tests. Other areas include engine adjustment and pre-delivery check. The system consists of mobile test stations (MPS), mobile diagnostic adapters (MDA), together with SIMATIC industrial PCs and the stationary component check system (CCS). Apart from the hardware components, SIDIS Pro consists of the following software components: administration server, web statistics, authoring tool for program generation and a runtime component for executing the test programs on the production lines.

Conversion during operation
For the new Golf, the test areas in the Volkswagen plant at Wolfsburg had to be optimized. The challenge was to re-equip three assembly lines and 16 testing lines while the plant was still operating. Eleven test lines were to be fundamentally upgraded and five were to be replaced by new ones, in order to guarantee a daily production of 2,800 vehicles in Production 1. The flexibility and expandability of the plant concept were important criteria for commissioning and testing both current and future Golf models. The Volkswagen project team defined the following requirement profile for the solution:

- Flexible, user-friendly design and layout of test processes and their contents
- Cost-effective, simple system maintenance and storage of spare parts due to uniform device technology for the different test tasks
- Reduction of testing times through the use of high-performance system components
- Optimized number of production cycles, thereby shortening test times by combining test areas within the final assembly

Creation of test sequences in the authoring tool of SIDIS Pro

Use of SIDIS Pro on the test lines at the VW factory in Wolfsburg
Thaddeus Kustra, Head of Automation and Testing at the Wolfsburg plant:

“We have successfully achieved the high quality targets we set for the electronic testing of vehicles and in the vehicle commissioning for the seventh generation of the Golf. We will continue to exploit the benefits of the SIDIS Pro system in future projects at the Wolfsburg plant.”

As a long-term technology partner of Volkswagen, Siemens was in a position to meet these requirements – and assembled a project team that collaborated with experts from Volkswagen to develop a comprehensive technical concept. This concept, in which SIDIS Pro plays a key role, was implemented on schedule within the two-year term of the project. Essential factors for the successful processing were the on-schedule conversion of the test lines on the basis of a “sample plant”, the development of a new test station concept, and the first-class collaboration between the project teams. The customer-specific development of reusable and flexibly usable software modules also proved extremely valuable. Their use simplified the generation of test programs by means of “ODX group formation”. In addition, the modules offer new functionalities for communication between the test system and the company-wide MQB vehicle platform of the new Golf.

Comprehensive solution installed
Over 100 SIMATIC 847C and HMI 677C industrial PCs were used for converting and re-equipping the 16 test lines. These had already been tried and tested in other plant sections at Volkswagen, where they had simplified both system maintenance and the storage of spare parts. The communication with the vehicle is performed by 150 SIDIS Pro MDA 7 devices. These guarantee flexible assignment between vehicle and industrial PCs.

Shorter test times thanks to new test station concept
The new test station concept combines the previously independent areas of vehicle testing and filling. This required a redesign of the systems and a guarantee of secure communication between them. The latter was achieved through the use of the secure and reliable IWLAN communication from Siemens that had also been proven in service in other plant units. The new test station concept consists of 50 combinations of SIDIS Pro MPS 7, SIMATIC ET200 distributed controllers, SCALANCE W788-2RR IWLAN access points, and W747-1RR client modules. This solution reduces the manufacturing time by running production cycles in parallel.

Ambitious targets achieved
Thanks to the high-performance SIDIS Pro test devices, the new test station concept and the perfect interaction between automation and test systems in the assembly and testing lines, Volkswagen is now benefitting from testing times that are more than 10% shorter. Not least, the perfect collaboration between the project teams at Volkswagen and Siemens – from the planning phase through to service – made a considerable contribution to the success of the project.

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For time-consuming processes on the assembly lines, e.g. the writing of data to the control devices (flashing), more than 100 SIDIS Pro MPS 7 mobile test and commissioning devices are used. These high-performance devices considerably reduce the flashing times. By calling up different test programs, the devices can be used universally in all commissioning and testing areas.
The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

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