

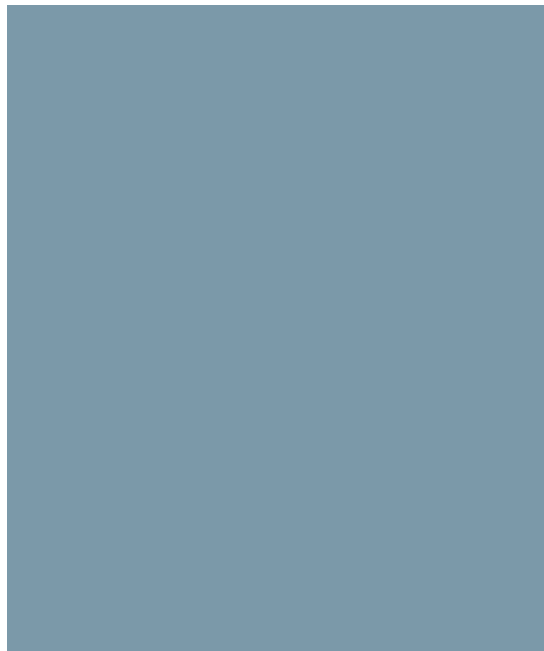


Making more of standards:
Solutions for Powertrain
TRANSLINE sl

SINUMERIK

Answers for industry.

SIEMENS



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Success down the entire line with Solutions for Powertrain

Today, traditional aspects such as price, performance and service life are no longer the only criteria for investment decisions concerning mass production. Nowadays, the most important factors are maximized availability and minimized “costs of ownership.” Solutions for Powertrain TRANSLINE sl is the automation solution for the automotive industry that can be integrated into global production concepts. This modular automation concept turns your production line into a road to success. It is based on a flexible modular system consisting of standard components.

Success through project management

However, Solutions for Powertrain involve more than just the technical side of automation. It also covers our project management, which relieves you of the time-consuming coordination work. And it also covers ideas and services for the entire operational phase: for sustainable cost reduction, and higher availability and productivity.

The modular design principle

Every solution is tailor-made, because Solutions for Powertrain are systematically based on the modular design principle. And that principally manifests itself in quicker commissioning, minimized spare parts requirements, efficient service, lower training costs, and a more flexible labor force.

One face to the customer

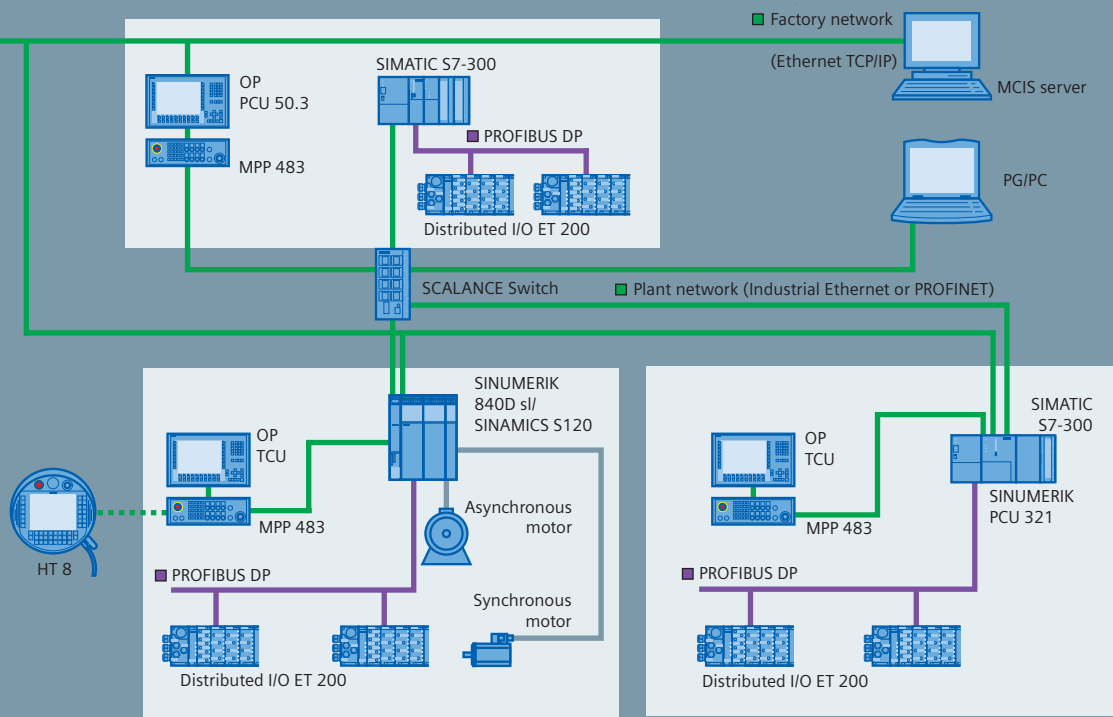
You have just one responsible contact from the planning stage right through commissioning and start-up to operation. Not only do our hotlines answer your technical questions quickly, you also have your own personal contact available to handle all aspects of design. The project manager on-site plays a major role: he or she analyzes the status of the project with you, coordinates the service, sets up the spare parts store, and organizes the training of your employees. In short, he/she is your contact for all questions.

And as production and assembly lines are to some extent designed worldwide, we handle the coordination here, too. One aspect of our responsibility for the project is securing and controlling the flows of communications between user, machine manufacturer and automation specialist. One of the main tools for achieving this is the project manual, which contains all the current information, and is always available to everyone involved.

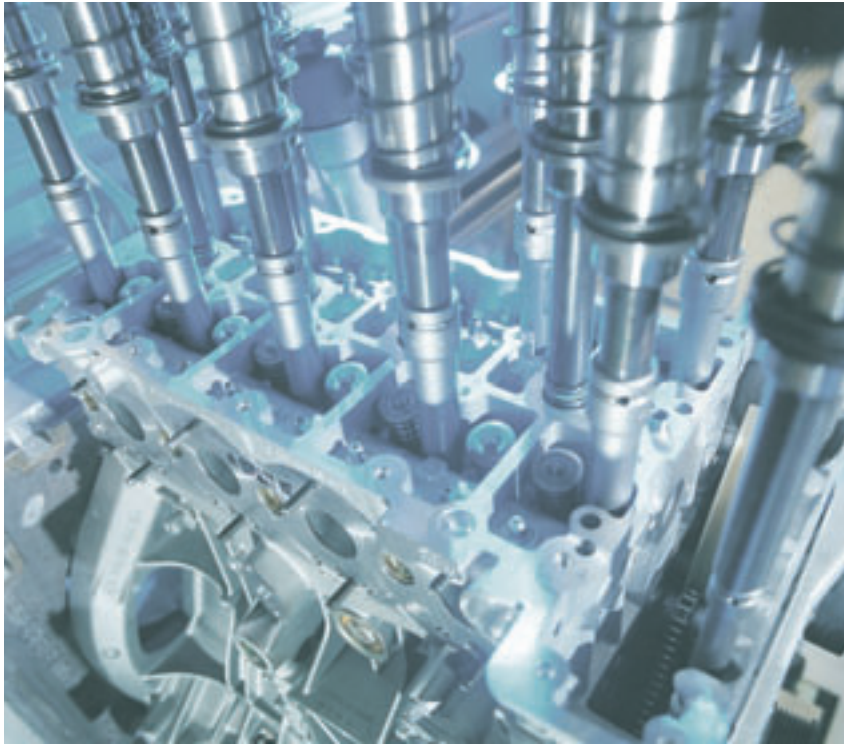
Making costs transparent

Approximately twenty percent of total costs are attributed to the initial investment, whereas eighty percent is taken up by spare parts, service and support, increasing performance, and updating technology and knowledge. In countless automation projects, our experience has been that total costs can be reduced by means of complete solutions. That includes, for example, increasing the knowledge of the planning and operative personnel at an early stage. That also means that our service engineers know and take into account all your plant specifications. And that also includes, stocking the optimum quantities of spare parts between maximum availability and minimized costs – to sustainably reduce your life cycle costs.

Creating individuality from standards



Solutions for Powertrain: Your one-stop solution for automating production lines. Its components are selected individually to solve the task at hand. It is already proving its worth on thousands of production lines everyday. The components: SIMATIC®, SINUMERIK®, SIMODRIVE®, PROFIBUS, PROFINET – names that have set standards in the market. Reliable standards which enable every system solution to be implemented – from the control of simple hydraulic units to complex high-speed machining modules.



A recipe for success:

Uniformity, simplicity, universal – by using the same hardware structure, the same operator interfaces and the same tools for project planning, programming, commissioning and diagnostics. Both machine manufacturers and users benefit from synergies – from project planning and commissioning, through personnel training to service and maintenance.

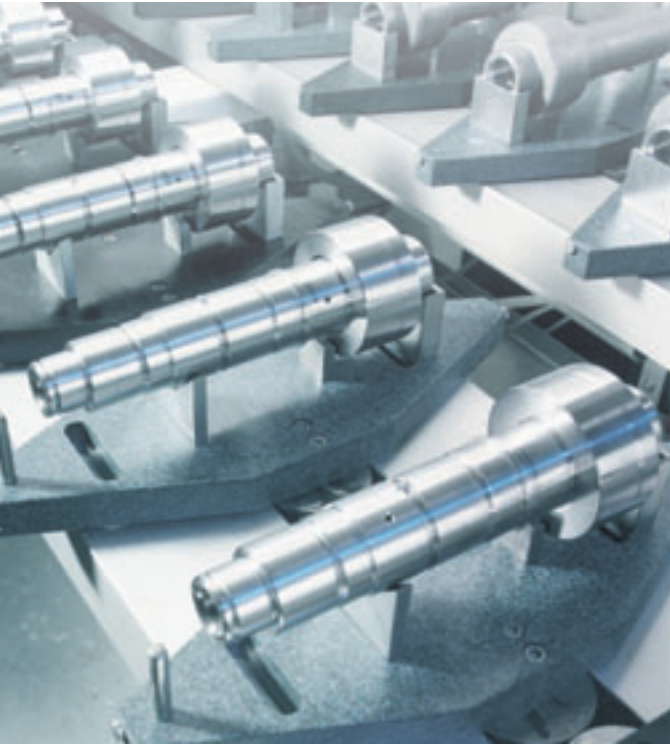
Freedom:

Our customers retain the option of making progressive modifications on the basis of these standards. The design of our technology is determined by the task, not vice versa.

What we do:

Implement solutions by integrating modular components in a complete system. This includes not only the planning phase and the specification of interfaces, but also active customer support for the system until it is operating – with the focus on training, instruction and service. Siemens automation solutions are a synonym for maximum availability and productivity – in production lines all over the world.

The right combination makes individuality profitable



The idea makes sense: The objective in production today is a “disciplined versatility” – with automation solutions that are, on the one hand custom-made and, on the other hand, based on proven, yet innovative standards. Solutions for Powertrain is just such a concept. It has been developed, polished and made universal under the name **TRANSLINE sl** specifically for mass production in the automotive industry. We would now like to present to you the individual building blocks of this solution.

Graduated process performance with SIMATIC S7-300

The SIMATIC S7-300 is the PLC par excellence which is also used in our CNC systems. With graduated performance from various central processors a SIMATIC S7-300 is capable of resolving even complex control tasks. It is supported by a comprehensive set of commands. Real-time communication via PROFINET and the tried and tested PROFIBUS DP open up a range of options for optimal data exchange within the process. Handling is simplified by integrated functions, such as automatic parameterization, expanded diagnostic options, passwords and ease of assembly. The PCU 321 offers an integrated HMI in S7-300 design and guarantees the consistency of the software as well as its integration into the IT landscape.



SINUMERIK 840D sl – a control system for every task

The SINUMERIK 840D sl is our drive-based control system with a graduated performance. Virtually everything is possible, from simple positioning tasks to complex machining processes, with up to 31 axes and 10 channels. To take just one example, its versatility ideally equips this CNC to machine Powertrain components in the automotive industry.

With its compact, modular design, the SINUMERIK 840D sl can be adapted to suit every configuration. “Safety Integrated” functionality provides reliable personnel and machine protection – without additional monitoring devices.

And, apart from the PLC and the NCK, it also integrates the drive control and HMI.

SINAMICS S120: Bringing production up to speed

The scalability of its drive power, number of axes and overall performance make the modular SINAMICS S120 the drive system of choice for demanding single and multi-axis applications. With its impressively compact structure and modularity, SINAMICS S120 also offers options for distributed structures over large distances. The commissioning of the drive is simplified by the use of smart software tools with user-friendly screen forms and automatic controller optimization by means of the automatic recognition of electronic type plates of the motors.

Universal – right down to the details



Intelligent automation solutions are primarily characterized by the fact that they are universal. Our System Solutions for Powertrain are complemented and completed by components such as operator panel fronts, user interfaces, I/O devices and sensors. This means that everything can be integrated, interface problems are unknown, and the time and money required for coordination is substantially reduced.

SINUMERIK operator panel fronts: An eye on everything

Whether PLC or CNC-based machines – the SINUMERIK operator panels offer you stationary and mobile devices of a product series that can be ideally integrated into your application thanks to its scalability from 7.5" to 15". In addition, the combination with the powerful and robust industrial PC, PCU 50, guarantees full flexibility and performance. If you are looking for a cost-effective solution with small dimensions and low-maintenance components, we can offer them to you by combining the operator panels with a thin client application. The thin client technology, is the ideal solution if you want multi-terminal operation. The range of operator panels is completed by the SINUMERIK pushbutton panels and machine control panels.



TRANSLINE HMI: Process under control

Knowing what's going on is crucial in production processes in which every moment of availability can be measured in financial benefit. Therefore, we paid close attention to this requirement when developing our "modular automation system." TRANSLINE HMI PRO sl is a flexible user interface with integrated NC operation for all types of machines. TRANSLINE HMI PRO sl runs on our PC-based standard operator panel on the SINUMERIK 840D sl and the PCU 321. The screen forms have been optimized for fast and simple set-up procedures and tool changing, for example.

Mobile and stationary operator panels, based on thin client technology allow low-cost access to TRANSLINE in the SINUMERIK 840D sl for CNC machines and in the PCU 321 for PLC machines.



SIMATIC ET 200pro: Local intelligent control

Distributed I/Os are increasingly becoming a hallmark of modern automation concepts. For good reason: this configuration significantly reduces assembly overheads, cabling and costs. The SIMATIC ET 200pro distributed I/Os show their strengths "on site," and can be optionally connected to PROFINET or PROFIBUS DP.

The IP67 degree of protection enables the distributed I/O devices to be used directly on the machine. The system provides the right module for every application, for example motor starters, RF identification systems and integrated PLC function. The SIMATIC ET 200pro has impressively compact dimensions, a modular design, and is ideal for the use of Safety Integrated.



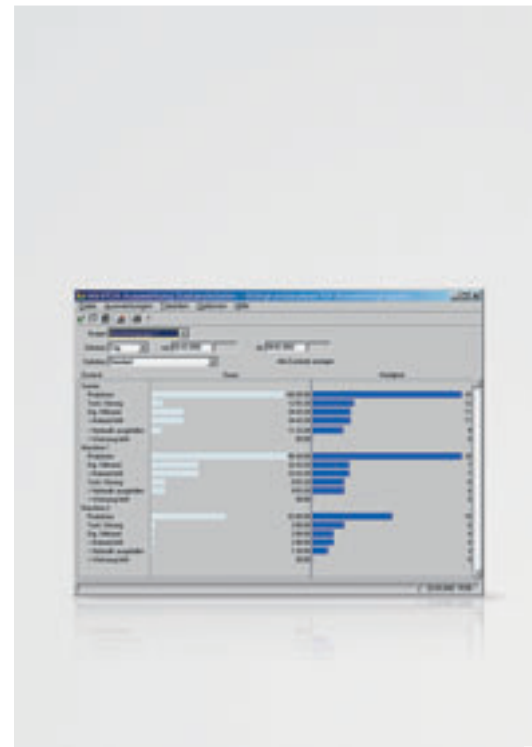
Always in the picture: SIMATIC sensors

The data matrix code reader does a robust and reliable job of recognizing and decoding data matrix codes. Even under difficult conditions, such as distortion, rotation or surface interference, it automatically finds the code in the picture. The machine vision camera system guarantees reliable identification of parts in the production process – for example, on the basis of type designation, serial or batch numbers.

With its SIMATIC RF series of products, Siemens offers RF identification systems that are used worldwide for controlling and optimizing the flow of materials.

Fewer downtimes, better communication, greater data security

High machine and plant availability are important prerequisites for trouble-free production processes and, in turn, optimal productivity. You can be sure of achieving these goals with the tools provided by Solutions for Powertrain, such as diagnostic functions, production data acquisition, and integration into higher-level systems.



Reduce downtimes with diagnostics

Here again, making more of standards is the key objective. Important diagnostic functions are integrated in the SINUMERIK 840D sl as standard. We also offer integrated diagnostics with fast, targeted fault location for the S7-GRAPH graphic programming method. The diagnostics also help with machine setup, which, in turn, contribute toward achieving high machine availability.

Tools for higher availability

MCIS MDA (machine data acquisition) and MCIS TPM (preventative maintenance) are additional software packages for increasing plant availability. The acquisition and evaluation of machine and process data with MCIS MDA facilitates the easy identification of weak spots in the production process.

MCIS TPM supports the machine operator in preventive maintenance so that plant downtimes are reduced to a minimum.

ePS Network Services provide Internet-based remote access, fault diagnostics and status-oriented maintenance. That forms the foundation for cost-optimized operation, efficient maintenance and increasing machine productivity.



Communication à la carte: PROFIBUS, PROFINET and more

Communication is essential for process efficiency – particularly in distributed concepts. TRANSLINE sl gives you all the possibilities of optimal networking.

PROFINET is the open Industrial Ethernet Standard and facilitates:

- TCP/IP communication between controllers and operator panels, programming devices and the master computer.
- Real-time communication between the machine control systems on the plant network and with the distributed I/Os.
- Easy integration of PROFIBUS DP, for example for quick and easy coupling to distributed intelligence, distributed drives and I/Os.

The versatile SCALANCE® product series offers a wide range of switches, and thus not only every option for setting up Industrial Ethernet networks, but also for using PROFINET. User-friendly diagnostics and robust cables and connections ensure fast commissioning and reliable operation.

The AS interface on the lower field level significantly simplifies the links to actuators and sensors – even in safety-oriented applications.

Data security means process security

Tool Data Management backs up data that is created and used on a distributed basis. It also manages and updates the programs executed in the controls that are installed directly at the individual unit or machine component. A map of the plant layout can be input easily without any specialist knowledge of systems or databases – via an operator interface based upon Windows Explorer.

All the data and configurations for the components specified in Solutions for Powertrain are backed up, loaded and managed, including modifications, in the associated storage structure – always using the same interface. This means that data backup can be automated, i.e. time-controlled. ADDM increases the plant availability and permits convenient organization of backups.

Get more information

Everything you need to know about SINUMERIK CNC:
www.siemens.com/sinumerik

Everything you need to know about the
SINUMERIK Manufacturing Excellence service portfolio:
www.siemens.com/sinumerik/manufacturing-excellence

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