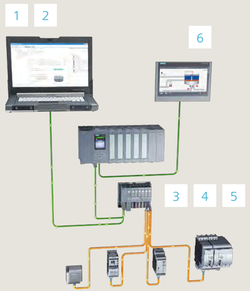
… For greater efficiency on all levels

The IO link solution from Siemens allows communication with sensors and closes the last metre in the process with continuous data transparency.

1 **Fast diagnosis**
- Detection and reporting of relevant diagnostic events
- Reduced effort in troubleshooting
- Minimisation of downtimes

2 **Efficient engineering**
- Fast, fault-free IO link engineering with the SIMATIC S7-PCT configuration tool integrated in STEP 7
- Reparameterisation in ongoing operation and reading of additional information
- Fast, simple commissioning of the IO link devices thanks to an existing library with device-specific function blocks



3 **Standardised wiring**
- Manufacturer-independent and cost-effective wiring technology
- Fast, fault-free switch from conventional wiring to IO link technology
- Simplified storage
- Increased productivity for service staff

4 **Automatic parameterisation**
- Parameterisation of a new sensor or actuator through IO link master or by means of IOL_DEVICE functional module
- Avoidance of incorrect settings
- Minimisation of downtimes and simplification of device replacement

5 **Reduced wiring cost**
- Faster installation and lower wiring fault rate
- Reduced number of I/O modules and cables due to use of up to 16 motor starters from Siemens per IO link master

6 **High process transparency**
- Transfer of measuring data, e.g. energy data, through the IO link devices to the higher level controller
- Optimisation of the energy demand
- Avoidance of cost-intensive peak loads
- Longer product lifetime

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SIEMENS
Ingenuity for life

IO link – continuous communication through to the last metre

Integrate sensors and actuators seamlessly into the automation pyramid

siemens.com/io-link

IO link – the point-to-point connection …

Consistent cost reduction, high system availability and transparency – the requirements for a continuous industrial communication are rising.

At the same time, actuators and sensors are becoming increasingly intelligent. To be equipped for the requirements of the future, data transparency and communication must therefore extend deeper than only to the control level. However, how can the growing intelligence of sensors and actuators be integrated and used optimally in the automation system?

Easily integrating sensors and actuators in the data flow
Siemens provides the answer with the open communication standard IO link. Here, you benefit not only from the simple, standardised and favourable point-to-point connection with which sensors and actuators can be connected to the control level, but also from the systematic diagnosis concepts and efficient handling of parameter data on all levels of automation technology.

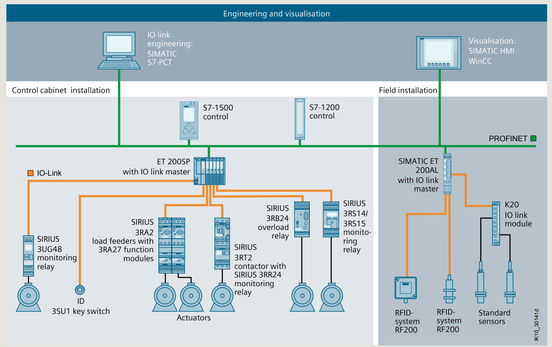
Lay the ideal basis for efficient transparency – with IO link both in the control cabinet and on the field level.

IO link – fully integrated in TIA

In every production facility, IO link solutions from Siemens ensure maximum precision and economy. Thus data access through to the sensor/actuator level, e.g. for central fault diagnosis and localisation, increase installation availability and reduce engineering outlay.

Through seamless integration in the Totally Integrated Automation (TIA) concept, the full potential of this communication standard emerges properly for the first time – both in the switchboard and on the field. Consequently, it allows simple, uninterrupted and open engineering. Furthermore, the inclusion in energy management becomes simpler and the commissioning of actuators sensors and switching devices becomes faster.

The IO link master modules and IO link devices can be parameterised conveniently using the PC-based STEP 7 port configuration tool (PCT) – and this can be done even with integration in the TIA portal. You can also select, configure and order all IO link products quickly and easily using the TIA selection tool.



IO link – all the products you need

As an open interface, IO link can be integrated in all current fieldbus and automation systems: the open communication standard was developed by the IO link company collective, in which leading suppliers of automation products have joined forces to support the concept in all areas of control, sensor and actuator technology.

The consistent interoperability ensures high investment protection – even in the context of existing machine concepts for the further use of sensors that have no IO link interface Furthermore, through the interoperability, you have a free choice of products and can benefit from guaranteed development.

	**IO-Link master** To connect IO link devices with your automation system, Siemens offers you IO link master for decentralised peripheral SIMATIC ET 200 and the SIMATIC S7-1200 control. These master modules integrate the IO link communication with sensors and actuators into the established fieldbus systems – PROFIBUS and PROFINET – and thus into Totally Integrated Automation.	• SIMATIC S7-1200 • SIMATIC ET 200eco PN • SIMATIC ET 200pro • SIMATIC ET 200AL • SIMATIC ET 200SP
	**Industrial switching technology** Industrial switching technology from Siemens offers you everything you need to integrate actuators into your automation network easily, efficiently and reliably via IO link.	• SIRIUS 3RS14/15 temperature monitoring relay • SIRIUS 3RR24 and SIRIUS 3UG48 monitoring relays • SIRIUS 3RB24 electronic monitoring relay • SIRIUS 3RA6 compact • SIRIUS 3RA27 functional modules for attachment to contactors
	**Commanding and Signaling Device** The SIRIUS ACT Commanding and Signaling Devices can also be connected to IO link. This includes the electronic SIRIUS ACT ID key switch with the latest RFID technology. Via special electronics modules for IO link, the SIRIUS ACT push buttons and signaling devices can be connected quickly to IO link.	• SIRIUS ACT ID key • SIRIUS ACT electronics modules

SIRIUS switching devices | IO link master | RFID systems | Commanding and Signaling Devices

	**RFID reader** The SIMATIC RF 200 RFID system IO link is designed for identification tasks, such as reading identification numbers. It consists of space-saving HF readers, which are particularly suited to applications in intralogistics or in small assembly lines.	• SIMATIC RF200 IO-Link
	**IO modules** The compatibility of IO link also allows connection of standard sensors and actuators. This is achieved particularly economically with the IO link input modules, which allow connection to the control of several sensors together via one cable.	• IO link K20 input modules
	**Software** IO link software tools and functional modules ensure standardised and efficient engineering and visualisation of diagnostic information. Thus the PC-based S7 port configuration tool simplifies parameterisation. Moreover, Siemens provides both IODD device description files and functional modules and UDTs for all IO link devices from the Siemens portfolio.	• S7 port configuration tool • IO link functional modules • IODD device description files

IO link – in every industry in the field

With its very fast and cost-saving cabling as well as the simple engineering, IO link has long since arrived in practice. In many applications and industries, the standard ensures a transparent data flow to the sensors and actuators – and thus more transparent, more reliable machines, installations and processes.

IO link in the steel industry

Duisburg steel production is dependent upon the reliable supply of processed coal to the furnace. At Emscher Aufbereitung GmbH, automation specialist EAS GmbH modernised the conveyor belts together with all auxiliary components, with new electrical engineering and automation.

Our solution
The group formation of SIRIUS motor starters with IO link significantly reduced the outlay for parallel wiring: the motor starters combine circuit breaker, contactor and electronic overload relay in one compact housing. SIRIUS power monitoring relays improve data collection and communicate with the control via IO link. By measuring the active current, conclusions can also be drawn about the efficient operation of the drives.

The benefit
- ignificantly less cabling, due to motor starter with IO link
- Optimised plant operation due to many diagnostic options
- Detection of faults in the control centre and targeted troubleshooting

Production machines for grinding discs

Davide Maternini SPA uses the ET 200AL and ET 200SP IO system to simplify the production process and to save costs and time. Use of the ET 200AL allows engineers to save time during the planning and implementation phase of the projects through the option of installing the modules flexibly, which reduces the number of switch boxes required. The diagnostic capability of the ET 200SP modules and the IO link sensor technology allow faster installation and a shorter debugging phase during commissioning on the customer site.

The benefit
- Reduction of installation and wiring time by 15% due to the flexible installation options of the ET 200AL directly on the machine
- Increase in availability as a result of the detailed diagnoses of the ET 200SP and information from intelligent IO link sensors
- Reduction of switchboard size due to the small footprint of the ET 200SP and installation of the ET 200AL outside the switchboard