As the degree of automation increased, so grew the need for intelligent field devices.

A messy variety of interfaces with different mechanical and electrical characteristics resulted. And the pressure for standardization became ever greater.

Using IO-Link a collaboration among several companies is developing the viable solution. Like USB in the PC world, IO-Link used in automation results in great simplification of installation while providing the capability for expanded diagnostics and parameter setting.

Before IO-Link the controller could communicate only up to the fieldbus devices. Communication up to the sensors and actuators was not possible. Only IO-Link makes sensors and actuators capable of communicating. Now devices can be parameterized centrally, diagnostics information can be sent from the device to the controller, and process data can be exchanged in digital form with high signal quality. IO-Link enables standardized and significantly simplified installation. Regardless of the complexity of the devices, plug-and-play allows them to always be connected using the same simple 3-conductor standard cable.

The IO-Link Community founded in 2006, consisting of leading automation manufacturers, promotes IO-Link with the acronym "USE":
- **Universal** – IO-Link is an international standard (IEC 61131-9)
- **Smart** – IO-Link enables diagnostics and parameter setting of devices
- **Easy** – IO-Link provides great simplification and cost reduction

The IO-Link-Master is the heart of the IO-Link installation. It communicates with the controller over the respective fieldbus as well as downward using IO-Link with the sensor/actuator level (gateway). The IO-Link-capable intelligent sensors and actuators are connected directly to the IO-Link master via IO-Link. This enables the simplest installation, best signal quality, parameter setting and diagnostics. The sensor/actuator hub exchanges signals with the binary and/or analog sensors and actuators and communicates via IO-Link with the IO-Link master.