

Naturalized

IO-Link masters with SIDI (Simple IO-Link Device Integration) give IO-Link devices the identity of a genuine Profinet module with its own GSDML entry; the function simplifies the engineering of IO-Link devices in projects with Profinet controllers, since it allows access to all parameters and device properties from the engineering system without the need for additional software

The praises of IO-Link have been already been sung often enough. The benefits of the bidirectional digital communication compared to the conventional analog and digital interfaces have now been recognized worldwide. Inexpensive wiring, diagnostic features, parameterization options, intelligent data retention, simplified e-planning and not least the vendor-neutral support of the standard are impressive features for designers, e-planners and PLC programmers. This is the reason for the success and the increasingly global popularity of IO-Link and the resulting ten million devices now in use.

Wanted: integration helper for IO-Link

What has so far not been mentioned in the eulogies: IO-Link also has its limits. There has particularly been a

shortfall with regard to the integration of IO-Link devices in Profinet systems. A GSDML file (generic station description markup language) is supplied with every Profinet device. This enables the control programmer to already plan and parameterize the device in the project offline (mostly in the TIA Portal), before the project is really integrated with the network and the connected devices. These two processes can initially be carried out independently, particularly in large projects.

Manufacturers of IO-Link devices do not equip them with their own GSDML file, and the device description comes in the form of an IODD (IO-Link device description). The Profinet engineering software cannot therefore detect the devices directly. The user has so far been forced to enter properties such as device class or manufacturer ID manually. Parameters such as measuring ranges and output signals had to be programmed or set via additional software.

IODD interpreters only with limited suitability

These kinds of additional software act as an interpreter of IODDs into other systems, in the same way as they are already used in various software tools. These programs enable the necessary settings to be carried out on the IO-Link device. The device is then integrated into the Profinet project. This has not been a satisfactory solution, particularly in large projects. PLC programmers therefore often had to deal with a large number of tools in order to integrate the devices of all manufacturers. Many programmers therefore took the hard route and programmed IO-Link devices again manually in their controller environment. Besides the time

QUICK READ

The station description files of Profinet devices enable them to be integrated in the engineering systems of the controllers. In this way, all devices and parameters of controller networks can be created, maintained from a single system and saved. The system does not allow this in-depth integration for IO-Link devices. Either manufacturer specific software is required for this configuration or a solution must be programmed via the controller – often involving considerable programming effort. SIDI from Turck now provides help here: The new function in Turck's IO-Link masters enables IO-Link devices to be integrated directly in a Profinet engineering software such as the TIA Portal – allowing also the display of all device properties and plain text access to the device parameters.



SIDI enables IO-Link devices to be integrated directly in a Profinet engineering software such as the TIA Portal. The software can now be used on Turck's TBEN-S and TBEN-L IP67 IO-Link masters as well as the IP20 variant FEN20

involved and the great deal of know-how required for this, this solution is also error-prone. Not to mention the problems encountered by service technicians with projects which were configured with different tools

SIDI integrates IO-Link devices in GSDML files

Turck identified this weakness in IO-Link early on and has already been working on its SIDI function for several years. IO-Link devices are entered here as Profinet submodules in the GSDML of the IO-Link masters. As an IO-Link member from the very beginning, the company is now equipping its IO-Link master in a block module design (in IP20 and IP67) with the SIDI function. Anyone integrating one of these IO-Link masters in a Profibus project can immediately use the connected IO-Link devices as Profinet modules.

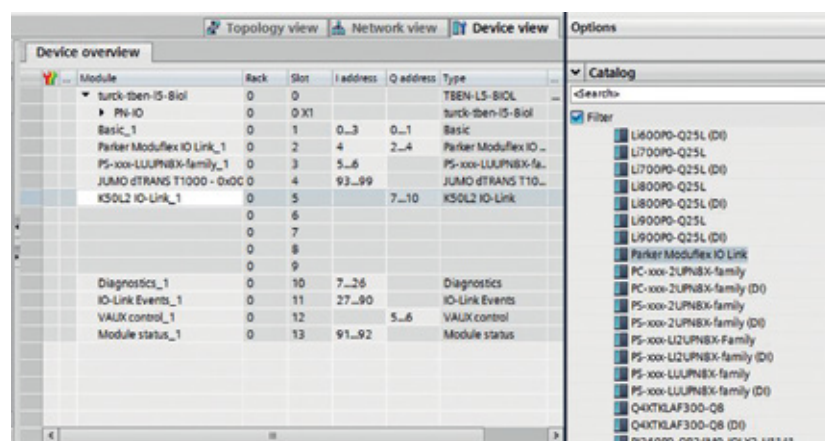
Turck integrates all its proprietary IO-Link devices in the SIDI library, as well as the devices of its strategic partner for optical sensors, Banner Engineering. The first IO-Link devices of third party manufacturers are also already included. More devices of other manufacturers are expected to be included in the SIDI library in future. For this, each device to be included must first be tested rigorously in order to ensure the smooth operation and the user-friendliness of the tool. Turck is also willing to integrate the devices of third party manufacturers on request – particularly those that are not included in the portfolio of the automation specialist. Turck has benefitted in the development of SIDI from its experience as manufacturers of IO-Link masters and devices. This double expertise is rare to find in the automation sector.

IO-Link devices by drop-down in Profinet projects

If the connected device is in the SIDI GSDML, PLC programmers can select it from the device catalog in their programming environment. The programmer can now view all the relevant IO-Link properties for these devices and alter parameters, such as measuring ranges, output signals or pulse rates in the plain text field.

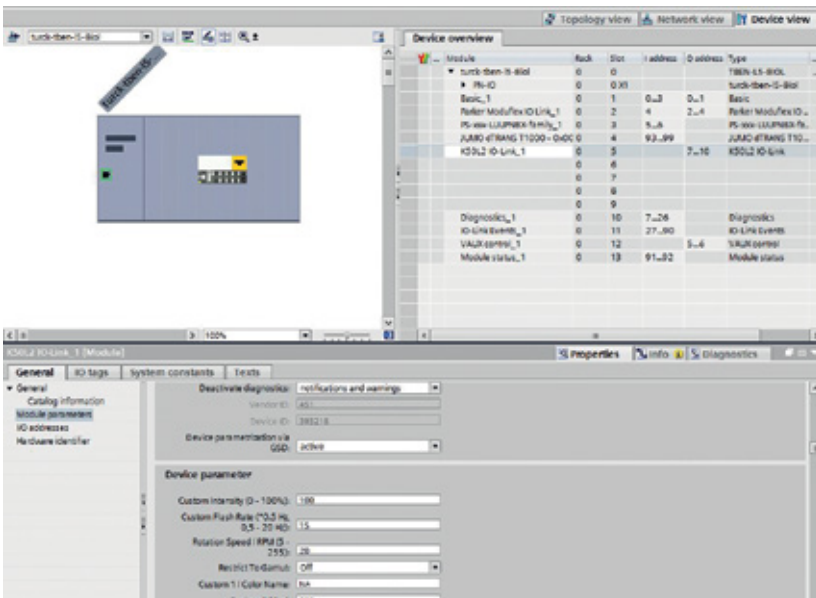
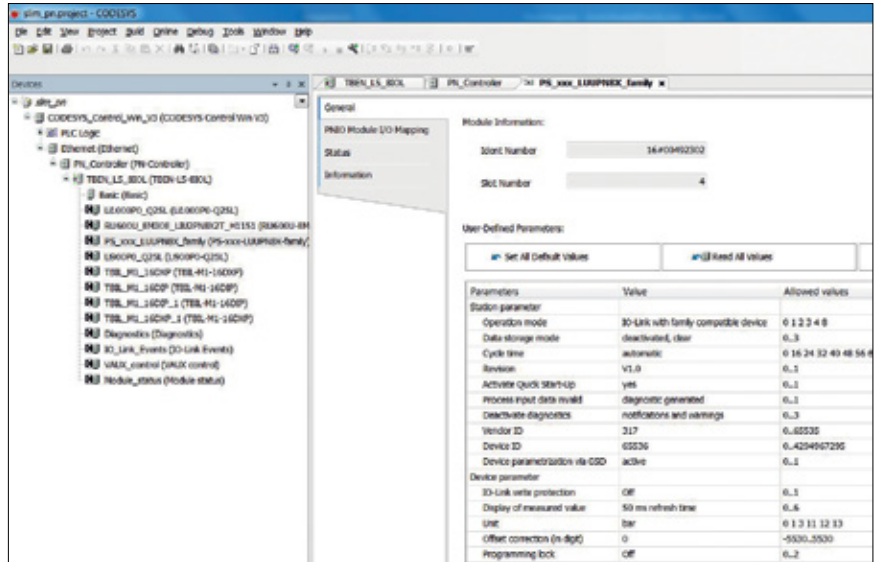
Offline engineering with SIDI saves considerable time

The benefits of SIDI particularly become apparent in large projects where using previous alternatives involved a lot of problems. Large plants and machines can normally be entered as a project offline first of all.



SIDI allows IO-Link devices to be selected from the hardware catalog exactly like Profinet modules

SIDI operates with different engineering systems since it is based on standard Profinet mechanisms



The parameters of the IO-Link devices can be set directly from the engineering system

The Profinet nodes are added in the device tree and selected normally from the library of the TIA Portal. Offline engineering is now also entirely possible with IO-Link devices. The devices therefore no longer have to be available on the PLC programmer's desk. Programmers also no longer have to visit each device in advance with the laptop in order to enter the necessary

settings via a USB adapter. Consistent offline access from the office desk to all device data therefore saves a lot of time in large projects compared to integrating IO-Link without SIDI. The wiring of pure IO-Link projects is basically child's play for fitters and electronic technicians.

Simple maintenance: Plug and play device replacement

Besides engineering, SIDI also supports maintenance. As all device properties and parameters of masters and devices are directly available in the central project location of the controller, automatic device replacement can be carried out easily without any problem – both for IO-Link masters as well as devices. Only the Profinet name has to be set. By using Profinet with topology information this even takes place automatically. Any laborious setting of the measuring ranges and other parameters is no longer necessary for the used devices.

The best of both worlds

By opening the engineering benefits of the Profinet world also for IO-Link installations, Turck as an automation manufacturer is trying to make the IO-Link standard attractive for die-hard Profinet fans. The cost saving benefits are in favor of IO-Link installations anyway. SIDI could in this respect rekindle some discussion between e-planning, design and purchasing.

SIDI – AT A GLANCE

- Full configuration of IO-Link devices directly from the Profinet engineering systems
- No additional software required for configuring IO-Link
- Intuitive operation and entry in plain text
- All devices in one project location
- Fast commissioning of large projects thanks to offline engineering
- Configuration-free device replacement of master and devices, since all parameters are kept in the controller itself

Author | Aurel Buda is product manager factory automation systems at Turck
Web code | more11971e