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LACS AND DRIVER SDK – THE IPA WAY TO RAPID INTEGRATION VIA SiLA

Overview

SiLA (Standardization in Lab Automation) is a new method for improving and simplifying the integration of lab devices in an automated environment.

Fraunhofer IPA's approach to writing new SiLA device drivers is to use the IPA Lab Automation Control Suite (LACS) together with the IPA Driver SDK. The combination provides a simple method for writing SiLA drivers and contains a SiLA-compliant control suite to directly test and work with all available SiLA-compliant devices. LACS enables processes to be defined and run on any SiLA certified device without the need to write any source code.

LACS and the IPA Driver SDK have both been developed in accordance with the European Good Manufacturing Practice (GMP); this enables them to be used not

only in a research and development environment but also in a regulated environment, such as in drug manufacture.

IPA Driver SDK

The IPA Driver SDK is based on many years of experience in developing drivers; it combines several technologies to enable drivers to be efficiently developed and written for any conceivable device. It offers:

- A unified interface for writing drivers independently of the actual device interface, including RS232, RS485 and Ethernet, etc.
- A set of hard-coded commands, such as reset, initialize, etc., which are implemented by each driver to enable consistent communication.
- A set of commands for specific classes of device to enable command consistency between devices of the same type

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SiLA Rapid Integration®



- A configurable log library capable of logging everything you might need during debugging. It can also be used in the normal operating state.

IPA Lab Automation Control Suite (LACS)

The IPA Lab Automation Control Suite, in short LACS, is a SiLA-based program that enables SiLA-compliant communication between large numbers of existing drivers with a minimum of extra work.

LACS is fully compatible with the IPA Driver SDK, thus enabling an SDK-based driver to communicate via SiLA. This is just as easy as starting LACS and defining the path to the driver file. Optionally, you can use a configuration editor to define the SiLA continuation tasks; these are made available to a SiLA PMS in case of recoverable errors.

However, LACS is not only limited to SDK-based drivers. It is also capable of loading numerous other drivers, including legacy drivers which might never even have heard of SiLA, and subsequently offering their functions via LACS in a SiLA-compliant fashion.

The configuration editor allows for an easy mapping of SiLA commands to the commands of the legacy driver using simple mouse clicks.

The Lab Automation Control Suite as a Process Management Suite

LACS is not just limited to loading drivers and enabling SiLA-compliant communication but can also be operated as a basic Process Management Suite (PMS).

In this mode LACS offers a simple GUI in which you can connect to any set of SiLA devices. Once connected to the SiLA devices, any of the commands offered by these devices can be run.

LACS also contains a process editor, which enables you to define small and larger automation processes that can be run on the connected devices.

Even better, once you have defined such processes, you can instruct the PMS to offer these processes in a SiLA-compliant fashion to other PMS's. This allows small simple devices to be combined to form complex arrangements using a simple logic.

Or you can distribute complex processes among several layers so that each layer only contains small, easily-understandable process segments. This scalability makes LACS the ideal tool for implementing control systems in anything from small to large-scale lab automation projects.

Good Manufacturing Practice

We take care to ensure that our software products are developed on a very high quality level. We therefore implemented a GMP-compliant quality management system to ensure high quality software.

This applies to the IPA Driver SDK as well as the Lab Automation Control Suite; both were developed in accordance with the GMP guidelines of the European Union (http://ec.europa.eu/health/documents/eudralex/index_en.htm).

2 *The combination of the IPA Driver SDK and LACS reduces implementation costs for SiLA-compliant device drivers.*