





Flexible function tests

Desktop Simulator

A small, variable, custom hardware-in-the-loop simulator would be ideal to quickly test a new function or controller. This is exactly what the new SCALEXIO LabBox from dSPACE offers.

Checking new ideas quickly and on the fly is important, especially when the development of new functions is still in its infancy. With the desktop version of SCALEXIO® LabBox, users can run hardware-in-the-loop (HIL) simulations directly at their desk.

SCALEXIO LabBox

With its dimensions of 45x35x18 cm, SCALEXIO LabBox takes up just as much space as a sheet of paper in DIN A3 format (approx. US Ledger size). Up to 18 SCALEXIO I/O boards can be inserted to meet different requirements. All of the I/O boards of SCALEXIO LabBox can also be used in a larger SCALEXIO HIL system, letting users exchange boards between the two systems. In large SCALEXIO systems, the SCALEXIO I/O boards can be used seamlessly with other SCALEXIO boards, such as MultiCompact I/O units and HighFlex boards. The following boards can be used in SCALEXIO LabBox:

- The DS6101 Multi-I/O Board lets users generate and measure typical automotive signals and provides a high number of I/O functions for HIL simulation.
- The DS6201 Digital I/O Board provides a high number of digital I/O channels, which can all be configured as input or output channels. The available I/O functions include digital, PWM and PFM functions.
- The new DS6301 CAN/LIN Board supports the CAN/CAN FD and LIN bus protocols.
- The DS2655 FPGA Base Board and its I/O modules – the DS2655M1 Multi-I/O Module and the DS2655M2 Digital I/O Module – provide a user-programmable FPGA and are designed for applications that require high-speed, high-resolution signal processing.

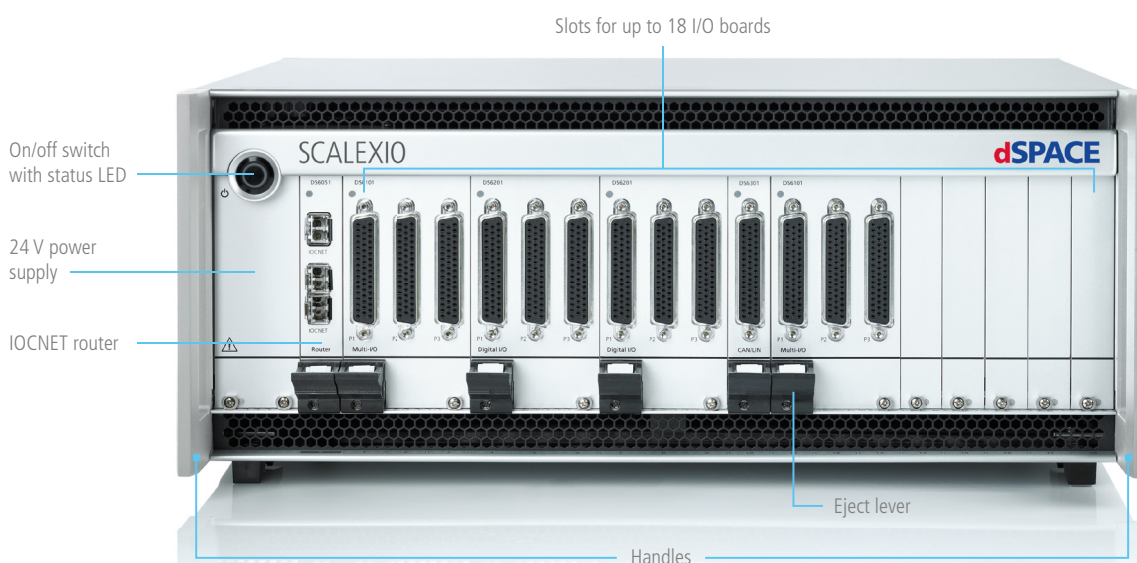
To provide computing power, the SCALEXIO Processing Unit is connected to SCALEXIO LabBox via an

IOCNET cable and the IOCNET router. With IOCNET and the IOCNET router, multiple LabBoxes can be connected to one SCALEXIO Processing Unit. SCALEXIO LabBox systems can therefore be adjusted to project requirements as needed. This combination creates a very powerful and highly flexible system that can test a wide range of functions in a first HIL simulation. The SCALEXIO Processing Unit has an Ethernet connector that can be used to connect it to Ethernet devices and networks.

New Board for CAN and LIN

The DS6301 CAN/LIN Board is the latest I/O board for the SCALEXIO HIL simulator. It offers four CAN/CAN FD channels (ISO and non-ISO CAN FD) as well as four LIN channels. Due to the high channel density, the costs for each bus channel are low. The channels can be configured with the Real-Time Interface MultiMessage Blockset or the Bus

The new SCALEXIO LabBox makes first function tests easy.



Manager. In combination with ConfigurationDesk®, the Bus Manager lets users configure the channels graphically.

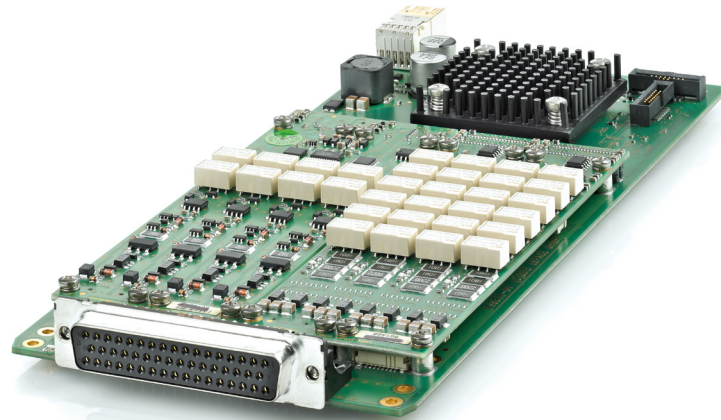
Standardized and Flexible

All the boards for SCALEXIO LabBox can be used for typical automotive functions without special adjustments. They all provide standardized 50-pin Sub-D connectors for connecting electronic control units (ECUs) with two different pin assignments: one for up to 20 differentiated channels and one for up to 32 single-ended signals. Using standardized connectors makes wiring easier than using different connectors for different boards. Signal conditioning is already integrated, so function tests can be performed right away. For test scenarios with electrical error simulation, the large SCALEXIO system offers the required components. The users can exchange the I/O boards as needed. Because some boards need more than one slot, the

The DS6301 CAN/LIN Board lets developers use CAN, CAN FD and LIN communication.

maximum number of boards depends on the project. Since it is so easy to switch boards, new ideas can be tested quickly. When functions are modified, the system can be adjusted flexibly. The channels are configured graphically in ConfigurationDesk,

while the simulation is controlled via ControlDesk®. Existing ConfigurationDesk configurations and ControlDesk layouts from other projects can also be used seamlessly on the larger SCALEXIO system for further testing, e.g., with failure simulation. ■



Two LabBox Variants

SCALEXIO LabBox is available in two variants.



Together with the SCALEXIO Processing Unit, the desktop version can be used for first HIL tests on the developer's own desk.



The rack-mount version can be installed in a 19" system. It is used predominantly in project-specific HIL systems.