

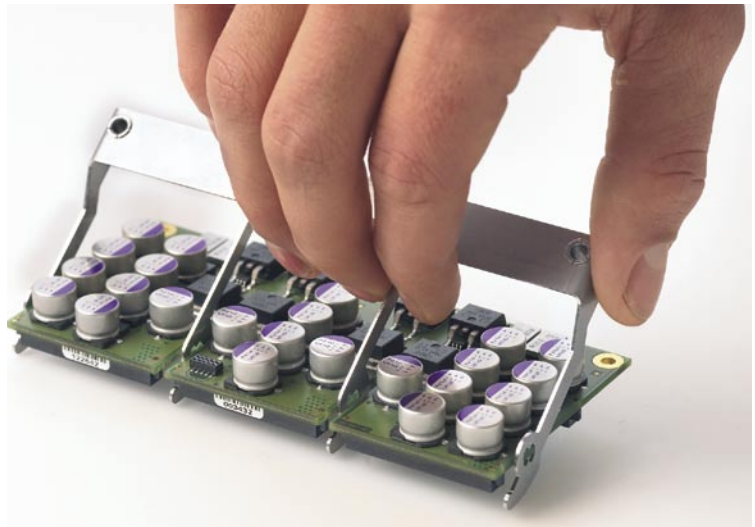
# Power Stages for High-Current Actuators

- **Hardware- and software-configurable off-the-shelf modules**
- **High-current modules up to 60 A**
- **Modules for developing motor and engine controls**



Two new powerful power stage modules from dSPACE have output currents of up to 60 A for controlling high-current actuators in rapid control prototyping applications. dSPACE also has two new signal conditioning modules, one for lambda probes and one for knock detection, providing a whole range of extra features for engine management applications. The modules are easy to integrate into the RapidPro system, so tailor-made prototyping solutions for a variety of applications can be implemented quickly and cost-efficiently.

## High-Current Modules up to 60 A

Valves in transmission applications, or DC motors for comfort electronics such as tailgates, power windows, and soft tops – whatever it is you want to control, the new high-current modules from dSPACE will give you the necessary current. The DS1667 1-channel full-bridge driver module provides current measurement for closed-loop control as well as 60 A maximum current. The DS1668 2-channel high-current module has two independent half-bridge drivers, each also equipped with current measurement and capable of providing up to 30 A current per channel. Both modules are diagnostics-



▲ *RapidPro modules can be easily installed into and removed from the units.*

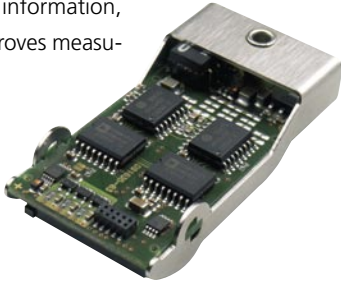
Max. Output Current for the High-Current Modules	
 <p>DS1667</p>	At +25 °C (+77 °F): 30 A continuous per channel, 60 A peak per channel for 1 second
	At +60 °C (+140 °F): 17 A continuous per channel, 60 A peak per channel for 1 second
 <p>DS1668</p>	At +25 °C (+77 °F): 25 A continuous per channel, 30 A peak per channel for 1 second
	At +60 °C (+140 °F): 17 A continuous per channel, 30 A peak per channel for 1 second

capable, with mechanisms for detecting faults such as overcurrent and overtemperature. They ideally complement the power stage modules already available for applications in brushless and conventional DC motors, and for controlling high-current valves.

## New Signal Conditioning Modules

Two signal conditioning modules provide a whole range of extra features for engine management applications.

**Knock Detection Module** – The new DS1635 2-channel knock detection module lets you capture and evaluate up to four signals on differential or single-ended knock sensors. Digital signal preprocessing is performed by an A/D converter integrated on the chip and a digital signal processor (DSP), considerably easing the load on the RapidPro system's microcontroller. The module is based on the CC196 Knock Detection IC from Bosch and can be configured for various gain factors and three parallel filters of up to order 49 for each knock sensor signal. This allows optimum filtering of interference noise that contains no knock information, and decisively improves measurement results.



**Lambda Probe Module** – The new DS1634 2-channel wideband lambda probe module was developed especially for engine applications. Up to two Bosch LSU4.2 or LSU4.9 linear lambda probes can be integrated.



## The RapidPro System

The RapidPro hardware can be used as an extension to dSPACE prototyping systems (MicroAutoBox, modular DS1005-based system) or as a stand-alone prototyping electronic control unit (ECU). With their compact and robust mechanical design, the units are ideally suited to in-vehicle use, and can also be used on test benches and in the laboratory. The enclosure is designed so that you can use the units separately or connect several of them to build a compact stack. A large selection of hardware- and software-configurable modules provides standard solutions for numerous application cases. Installing the modules is easy, so the RapidPro units can be reused efficiently in different projects. All modules used in conjunction with the RapidPro Units are vehicle-capable and can be installed safely on the carrier boards.



▲ *The flexible hardware platform RapidPro is a tailor-made prototyping solution for a variety of applications.*