CAN Newsletter Online

# SIL-2 compliant controller for vehicles

**The ESX-3XM programmable controller by STW (Germany) is dedicated for mobile machines and off-highway vehicles. The controller requiring half the space of the ESX-3XL controller complies for SIL-2 applications. The device features four CAN interfaces, and one serial EIA 232 port (115 kbit/s). It provides locally up to 66 I/O channels.**

THIS SECOND ESX FAMILY MEMBER is built around the 32-bit Tricore TC 1796 processor clocked with 150 MHz (Infineon). It comes with 6 MiB of flash memory, a 4-MiB RAM, and 32 KiB of EEPROM. The device is configurable through software, and provides up to three expansion boards. All 66 inputs and outputs in the base version are configurable. For example the 15 multi-function inputs can, depending on function call, be used as current, voltage, digital or RPM inputs. The 8 high-side outputs are equipped with feedback for current controlled devices and loss-free wheel circuits. All outputs can be switched off via a second path.
Additionally, the safety controller provides one programmable constant voltage output, two dual-color LEDs, and one buzzer. All inputs and outputs are protected against short-circuits and overloads. Open-circuit and overload on the supply pin can also be detected. All analog signals, internal and external, are available as 12-bit values with a 2-kHz sample-rate.

For application-specific adaptation up to three expansion boards can be added, with each accessing 14 pins on the connector, where each pin can be independently assigned with a specific functionality. Several expansion boards are already available, for example for EIA 232/485, real-time clock, data memory, incremental inputs and PVG/digital/PWM outputs.

The controller comes in a robust aluminum housing suitable for rugged environment as required for agricultural and construction machinery. A proven connector system with secondary interlock forms the interface to the vehicle or machine.

The application software for the controller is developed using the ESX-BIOS either in C/C++ or based on IEC 61131-3 (Codesys). Various additional libraries for example for CANopen or error handling are available.