

CONTROL UNIT

For automated machine applications

Due to increasingly-automated processes, the amount of signals and data processed on control units is growing. This is why STW is expanding its ESX control family with two models. The control units are based on a platform that utilizes the 32-bit Aurix three-core processor with 300 MHz and four respectively six CAN interfaces.



Applications can be realized by the company's software Opensyde which displays CAN data and makes these useable in cloud or HMI solutions (Source: STW)

Both the ESX.4cl and the ESX.4cm-a are programmable control units in die-cast aluminum housings. They are suitable for use in confined spaces and under adverse conditions, said the company. The control units are based on the 32-bit Aurix three-core processor with 300 MHz. The ESX.4cl supports six and the ESX.4cm-a four CAN interfaces. Like all STW controllers based on the Aurix platform, these two control units are both certified for functional safety level SIL 2 / PLd.

What fundamentally differentiates the control units is the i.MX 6 coprocessor option for the ESX.4cl. The i.MX 6 provides computing power for more demanding applications, and brings connectivity to the control system with protocol and interface flexibility, and additional networking features for control architectures, explained the company.

Applications can be conceptualized and implemented with the company's open-source software toolchain Opensyde. With numerous pre-installed widgets in the software, CAN and Ethernet data can be displayed graphically and are available for use on HMIs (human-machine interface) or in cloud solutions. Numerous functions such as current control and output ramps, and frequency averaging for inputs are already integrated. Additional libraries including CANopen, J1939, or Isobus are scheduled to be available for system integration. An 8-MiB flash memory, 2-MiB RAM, and a 32-KiB EEPROM are available for customer applications. Large tables or cyclically-recorded data can be processed and selectively stored to either an external 128-MiB flash memory or a 512-KiB FRAM. The company stated: With these features, manufacturers of mobile machinery are positioned to meet the coming challenges in construction, agriculture, forestry, and municipal technology.

While the ESX.4cm-a has one Ethernet switch, the ESX.4cl comes with two. The larger controller, ESX.4cl, has six Ethernet interfaces, with one port specified to 1 Gbit/s. The managed switches relieve the main processor, and no computing power is required from the processor for switching functions. The ESX.4cl has a total of 113 inputs and outputs, with 53 outputs, low-side and high-side, and 60 multifunction inputs.

The ESX.4cm-a offers machine manufacturers two 100 Mbit/s Ethernet and two BroadR Reach ports. 34 configurable multifunction inputs and 29 outputs, low-side and high-side, enabling connecting additional sensors and actuators. Both control units support Sent and [LIN](#) and provide supply voltages from 5 V to 12 V for connected sensors.

[CW](#)