

TÜV Süd certifies Safety over EtherCAT Conformance Test Tool

Interview

Dr. Guido Beckmann, Safety Expert at the EtherCAT Technology Group

In 2010 the EtherCAT Technology Group announced an all-inclusive package for Safety over EtherCAT. How does the new FSoE Conformance Test Tool fit into this package?

Beckmann: „When it comes to the simplest implementation of an open safe communication protocol, device manufacturers usually are dependent on the support of the technology provider. The basic requirement is a certified protocol specification that allows a simple and lean implementation of the protocol. With Safety over EtherCAT, code size and stack delays are significantly lower than with other comparable protocols. The safety ‘container’ with a minimum of 6 bytes also allows the simple use of traditional fieldbus systems or internal device interfaces.

Additionally, pre-certified software stacks are available to help reduce the time needed for integration. With versatile support opportunities of different service providers it’s quite easy to integrate Safety over EtherCAT into the product range: ‘Make or Buy’ – With Safety over EtherCAT you have the choice.

Every equipment manufacturer must also always carry proof that the protocol specification is implemented and integrated in the device completely and correctly. This is exactly what the FSoE Conformance Test Tool is for. It helps the manufacturer to detect implementation errors during the development process. In addition, the test prior to the release of the device must naturally be conducted and passed.”

Safety over EtherCAT has been on the market since 2005. Why is the FSoE Conformance Test Tool available just now?

Beckmann: „Shortly after the publication of the Safety over EtherCAT protocol we created a test case specification for the conformance proof which has been approved by TÜV Süd. Since then this specification was available for all device manufacturers; the test cases had to be integrated into the existing test environment.

After we completed the standard EtherCAT Conformance Test Tool, we extended it by integrating the safety test cases to enable an automatic test run. For the proof of completeness, extensive counter tests of the tool implementation were required: So, for example, we developed a test slave which provides expected and unexpected responses for all 300 test cases to test the ‘green’ as well as the ‘red’ testing branch in the tool.

The development process, the implementation and partially the verification tests were accompanied and finally screened by TÜV Süd. The TÜV Süd now confirmed that the tool is

ETG072013

8th April 2013 | Page 2 of 3

convenient for the validation of the conformance test of FSoE slave devices according to the FSoE specification.”

Does the ETG now plan to open special Safety Test Centers?

Beckmann: „Yes. The cooperation with TÜV Süd showed that it is necessary to accredit independent test centers to maintain the integrity of a safety technology. At the moment we’re busy with extending the EtherCAT Test Center in Nuremberg, Germany, to a Safety over EtherCAT Test Center. Here again, TÜV Süd is involved in order to audit the processes of the preparation, execution and earnings of the tests.

Our experiences from the existing EtherCAT Test Centers additionally confirm the advantage of an independent test body: Despite complete publication of all tests which are carried out there, one can always offer suggestions for improvement to the device manufacturers in order to ensure compatible use in the field.”

Press picture



Picture caption:

Dr. Guido Beckmann, Safety Expert at the EtherCAT Technology Group

ETG072013

8th April 2013 | Page 3 of 3

About EtherCAT Technology Group (ETG):

The EtherCAT Technology Group is an organization in which key user companies from various industries and leading automation suppliers join forces to support, promote and advance the EtherCAT technology. With over 2,300 members from 56 countries the EtherCAT Technology Group has become the largest fieldbus organization in the world. Founded in November 2003, it is also the fastest growing fieldbus organization.

About EtherCAT®:

EtherCAT is the Industrial Ethernet technology which stands for high-performance, low-cost, easy to use with a flexible topology. It was introduced in 2003 and has been an international standard since 2007. The EtherCAT Technology Group promotes EtherCAT and is responsible for its continued development. EtherCAT is an open technology: anyone is allowed to implement or use it.

➔ For further information please see www.ethercat.org.

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