EL9820/EL9821 Evaluation Kit

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BECKHOFF

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1 Foreword

1.1 Notes on the documentation

This documentation is only intended for the use of trained specialists in control and automation engineering who are familiar with the applicable national standards. It is essential that the following notes and explanations are followed when installing and commissioning these components.

1.1.1 Liability conditions

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

The documentation has been prepared with care. The products described are, however, constantly under development. For this reason, the documentation may not always be have been fully checked for consistency with the performance data, standards or other characteristics described. None of the statements in this manual represent a guarantee for as set out in § 443 of the German Civil Code or a statement about the assumed use according to the contract as set out in § 434 para. 1 clause 1 no. 1 of the German Civil Code. In the event that it contains technical or editorial errors, we retain the right to make alterations at any time and without warning. No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

1.1.2 Delivery conditions

In addition, the general delivery conditions of the company Beckhoff Automation GmbH and the EtherCAT Evaluation Kit Licence Agreement apply.

1.1.3 Copyright

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2 Product overview

The evaluation kit EL9820/EL9821 consists of the EL9800 base board, the field bus postage stamp FB1111-0142 and accessories like cables.

2.1 Hardware

2.1.1 Base board

The base board EL9800 is used as a platform for EtherCAT-Slave development. The different process data interfaces (PDI) are implemented as pin headers that are allowing a flexible development of complex EtherCAT-Salves.

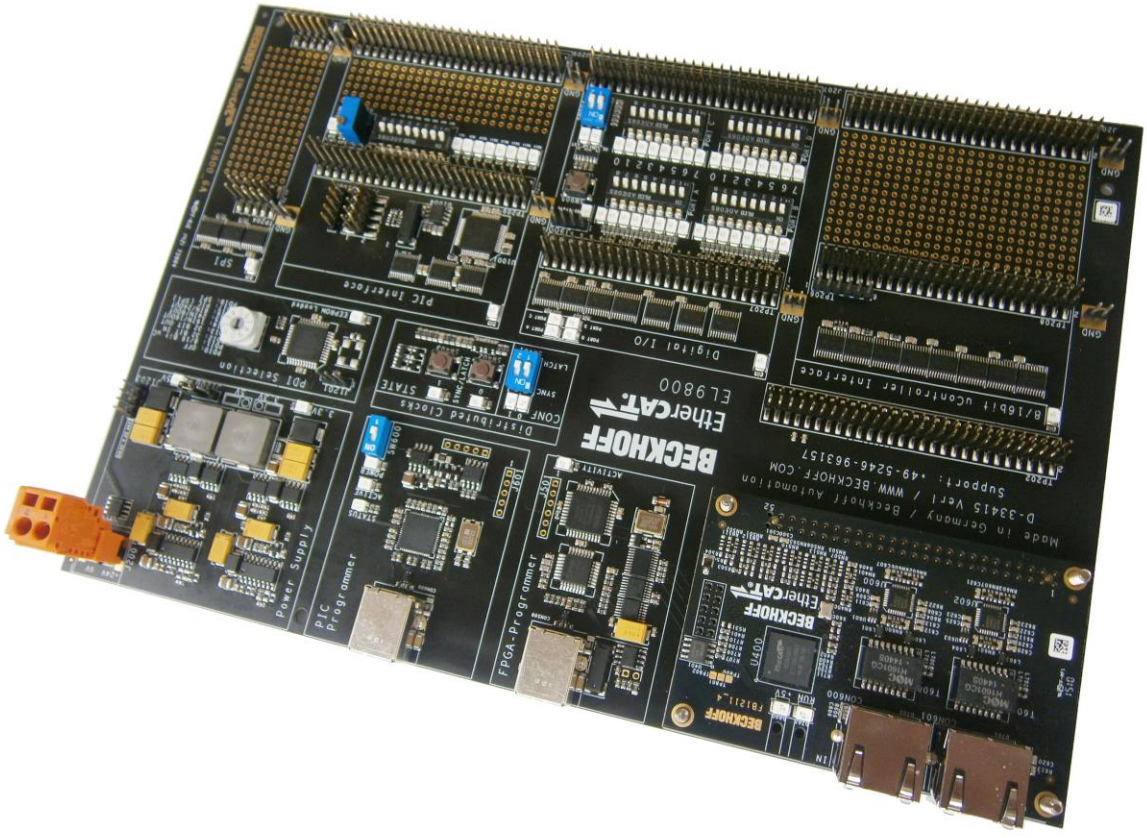

Figure 1Evaluation Kit base board

The documentation can be downloaded from our website under http://www.beckhoff.com

2.1.2 Field bus postage stamps

The postage stamp FB1111-0142 is part of this Evaluation Kit. The fieldbus postage stamp FB1111-0142 is based on the EtherCAT ASIC ET1100 and implements two EtherCAT-Ports and a digital process data interface.

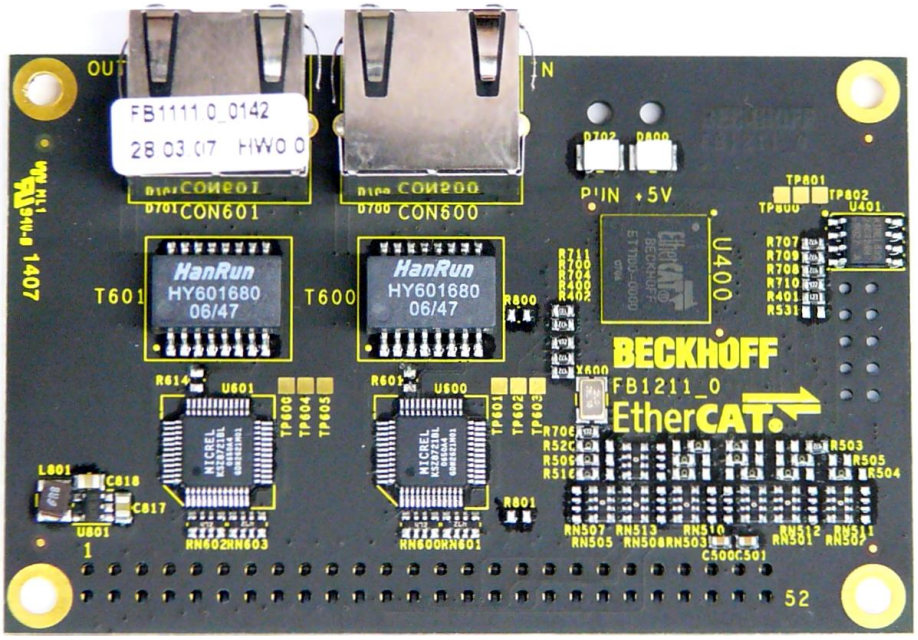

Figure 2 Field bus postage stamp FB1111-0142

The documentation for the base board FB1111-0142 can be downloaded from our website under http://www.beckhoff.de.

2.1.3 Accessories

The accessory of the Evaluation Kit EL9820 contains of:

- 1 x USB cable

2.2 Software

2.2.1 TwinCAT

At least TwinCAT Version 2.10 (Build 12.10) is necessary in order to use EtherCAT components under TwinCAT. A 30 day trial full version of TwinCAT can be downloaded from www.beckhoff.com.

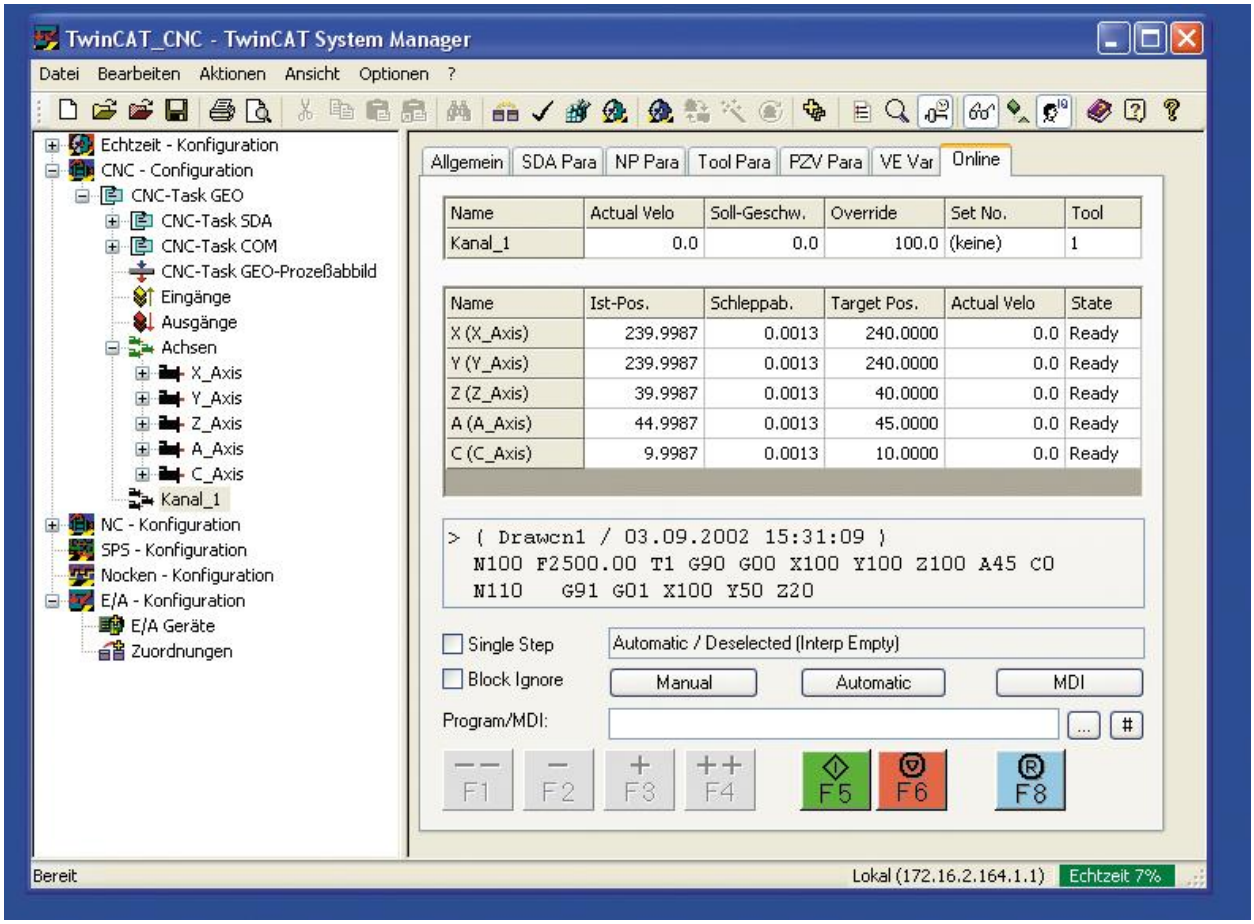

Figure 3 TwinCAT system manager

2.2.2 Slave Sample Code

The EtherCAT Slave Sample Code is an example source code in ANSI C supporting both the µC and the SPI interface. The code serves as a development base for implementation of EtherCAT in devices with own processor.

- EtherCAT handling in the controller
- handling of the state machine
- mailbox handling
- protocol handling for:
    - CoE (CANopen over EtherCAT)
    - FoE (File Access over EtherCAT)
- sample applications for all variants

2.3 Workshop

For the evaluation kit EL9820 the workshop TR8100 can be ordered additionally. This workshop is already included in the evaluation kit EL9821.

The workshop TR8100 is focused on Slave-Developers and treats the topics:

- hardware for EtherCAT
- TwinCAT 2.10 installation, including drivers and EtherCAT protocol
- TwinCAT introduction
- process data interfaces (PDIs):
    - 8/16 bit microcontroller interface
    - 32 bit digital I/O
    - SPI interface
- PDI timing
- Slave Sample Source Code
- EtherCAT Slave Controller: ASICs ET1100 and ET1200 and EtherCAT IP Core
- network monitor
- device description file (XML file)

Training location: Verl, Germany; duration: 1 day

3 Appendix

3.1 Beckhoff Support and Service

Beckhoff and their partners around the world offer comprehensive service and support, making available fast and competent assistance with all questions related to Beckhoff products and system solutions.

Beckhoff Support and Service is available to you wherever you are in the world, and can be reached by telephone, fax or e-mail. The contact addresses for your country may be found in the list of Beckhoff branches and partner firms.

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Support offers you comprehensive technical assistance, helping you not only with the application of individual Beckhoff products, but also with other, wide-ranging services:

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You will find further support and service addresses on our Internet pages under http://www.beckhoff.com/. You will also find further documentation for Beckhoff components there.