WEINZIERL

KNX Certification

Requirements and Procedure for Testing

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General information about the KNX certification process

A major pillar of the KNX system is a cross-manufacturer compatibility of various applications and products. This is achieved by the advanced certification system of the KNX Association.

All devices which

- carry the KNX logo
- are managed by ETS

must be tested by a test laboratory accredited by the KNX Association. During the KNX certification process, the devices are tested according to the requirements of the KNX Standard.

Weinzierl has established a KNX accredited test lab for both:

- System software (KNX stack test)
- Applications (KNX interworking and functional test)

The test lab offers a comprehensive service for KNX Certification:

- Advice before and during development (e.g. regarding the use of KNX Datapoint types DPT)
- Support for product registration (e.g. creation of KNX - forms)
- Creation of test plan
- Creation of test setup
- Preparation of test sequences with the official test tool (EITT)
- Implementation of the compliance check by the KNX specification

If you have any questions do not hesitate to contact testlab@weinzierl.de.
The team of the test lab at Weinzierl will support you in any question related to KNX Certification.

Following requirements have to be fulfilled for a KNX certification of a product:

- The manufacturer has to be a member (shareholder or licensee) of the KNX Association. The sign up process is managed by the KNX Association. For more information see knx.org -> KNX members -> Joining / Fees
- The manufacturer must have a quality management system according to the ISO 900x with certificate issued. For more information see KNX specification Vol. 5.
- The manufacturer has to provide a CE declaration for his product to ensure hardware requirements according to applicable standards. A KNX device has to comply with the following hardware requirements
  - Environmental conditions
  - Electrical safety
  - Functional safety
  - Electromagnetic compatibility (EMC)

  All hardware requirements are listed in the KNX specification, Vol. 4 and in the Application Note 126, which is available at the KNX ftp server for KNX members.
- After product development, the manufacturer has to register the product which shall be certified. The whole registration process is managed by the KNX Association. All registration templates and the description of the registration process are available at the KNX ftp server. Some of the registration documents must be created with the ETS Manufacturer tool. For more information see the registration help on the KNX ftp server.
- All required tests for system conformity are explained in the KNX specification Vol. 8.

Following tests are needed:

System requirements	Choices in the development process	
Application specification Vol. 3.	Interworking / functionality tests	
Lower layer / Stack specification Vol. 3.	Certified KNX Stack	Management, Lower layer / stack tests according to Vol. 8.
Physical Layer specification Vol. 3.	Certified transceiver	Physical layer tests according to Vol. 8.

Note

If a device is based on hardware or software components which has been certified before, these parts are not required to be tested again. If for example in a new KNX device a certified KNX transceiver and a certified KNX stack is used, the device 'inherits' the certified status of these components. Therefore only the application specific tests (Interworking / functionality) are required. The same is true for devices based on modules with certified transceiver and stack.

Fast registration procedure

To enable a rapid market entry, products can be sold using the KNX label after KNX product registration. After registration the manufacturer has a maximum of 6 months to perform an Interworking / Functionality Test of the product in an accredited test lab in order to ensure compliance with the KNX system requirements.

Tests that can be performed at the Weinzierl Test Lab:

1. Interworking / functionality test

1.1 Needed information and items for quotation

- Registered ETS database (knxprod file) of the product for a preparation of an offer.
- Detailed manual about the product, which describes the functionality of the ETS database parameters.

1.2 Needed information and items for testing

- Two reference samples of the product.
- Registration documents
- Description of all Data points (DP):
    - DP name
    - DP description
    - DPT ID (e.g. DPT 1.001)
    - IN / OUT
    - DP sent spontaneous
    - DP sent on request
    - DP sent cyclically (repetition time)
    - DP sent on changed value
    - Polling
    - Behavior or DP after power down / up, device reset or configuration
- Description of the installation and a connection diagram of the product.
- Description of the commissioning of the device and of the configuration of the parameters.

1.3 Testing process

- Send a written order to the test lab.
- After order confirmation all documents and items have to be send to the test lab.
- After availability of all needed items the test lab will prepare test setup including the test concept and according sequences.
- The customer has the possibility to prepare a test concept and sequences on his own. In this case the test lab has to validate the concept and the sequences.
- After creation of test sequences, the test lab will test the product according to the KNX specification.
- After testing, a test report will be created and send to the customer via e-mail.

2. Lower layer / stack tests

1.1 Needed information and items for quotation

- Registration documents (available of KNX ftp server):
  - PICS and PIXIT for KNX Services[1]

1.2 Needed information and items for testing

- Two reference samples of the product.
- Connecting diagram of the product and a description of inputs and outputs

1.3 Testing Process

- Send a written order to the test lab.
- After order confirmation all documents and items have to be sent to the test lab.
- After availability of all needed items the test lab will prepare test setup including the test concept and according sequences.
- The customer has the possibility to prepare a test concept and sequences on his own. In this case the test lab has to validate the concept and the sequences.
- After creation of test sequences, the test lab will test the product according to the KNX specification
- After testing, a test report will be created and sent to the customer via e-mail

3. Preliminary tests

Tests for KNX certification can only be carried out after KNX registration. In order to ensure correct functionality of the device **before** registration, it is possible to make preliminary tests carried out by a testing laboratory. The test procedure can be according to KNX specification of certification to ensure correct functionality and interworking.

The test setup and sequences can be reused for later certification tests after registration. This will reduce the effort and the time required for the final tests. This procedure should help our customers to bring the product quickly and safely to the market.

In addition, the team of the Weinzierl test lab is at your disposal for any advice related to KNX registration and certification. Our service includes a check of used KNX data point types as well as reviews of your ETS product entries.

Physical layer tests

If a physical layer test is needed, please contact Weinzierl Engineering GmbH or the KNX Association for further clarification.

CE Declaration

We will advise you on the topic 'CE' compliance. In addition to own measurement equipment for EMC, we are working for the detection of the CE conformity with competent partners.

[1] **PICS**: Protocol Implemented Conformance Statement – It is in common a statement of what is supported of the system under test.
PIXIT: Protocol Implementation eXtra Information for Testing – These are, in common, parameters, which are needed to carry out the testing, including the information element contents required.

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