KNX CERTIFICATION PROCEDURE

Handling the certification paperwork – It’s easy!
KNX Certification Procedure

• Who?
  – KNX shareholders / KNX Royalty-per-Unit licensees
  – Interested Party: *not allowed* to certify any products

• Only ISO 9001 certified companies?
  – In the case of OEM registration → NO
  – In the case of “MAIN” registration → YES and NO
    • If *own* developed physical layer or stack, then YES
    • The member company does not have to be ISO 9001 certified provided that *the physical layer or stack is already certified*. In this case the manufacturer can take recourse to a subcontractor that complies with ISO 9001 for the development and production of the product.
Definition: Main & Derived Product

• Definitions
  – **Main** product: product which has been developed and manufactured by the KNX member company
  – **Derived** product: Also referred to as **OEM product**. This is a product which has been developed and manufactured by a KNX member company and sold on to another KNX member company who then **relabels** this product with its own company logo
    • Simplified procedure for registration
    • No tests required
Why certify your product?

• Why certify your product?
  – KNX logo on product is a token of quality
    • Hardware and Software have been thoroughly tested
  – Interoperability with other KNX devices
  – **One Tool (ETS)** for designing and commissioning thousands of different KNX products:
    • Installer does not have to learn your - or any other private (closed) software just for making a home & building installation. He just has to “insert” your product in this unique tool (via online catalogue or via knxprod files provided to him)
How to start?

- unique manufacturer code
  - Manufacturer code can be requested “online” in MyKNX
  - Menu: My account – My membership

Request a Manufacturer’s Code

Manufacturer name

Product groups
- KNX Devices
- ETS Apps
- Cable and/or Connectors
- System components (transceivers, KNX Stack, etc)

Submit request
KNX Registration Procedure

• Create your project in KNX Manufacturer Tool (MT)
  – **Note:** As of July 1st 2016 it is not possible to submit projects with target version ETS3
  – Exceptions:
    • for OEM products
    • Small updates, bug corrections for main products still possible to submit projects with target version ETS3 (case by case evaluation by KNX Certification Department)
How to create a product in MT? (See also Volume 5 of KNX Specifications)
How to create a product in MT?

output file = knxei file
Filling out the registration forms

- Fill out the registration forms
  - Contrary to MT4, the registration documents of MT5 are embedded in the tool itself.
Filling out the registration forms

- Select the registration case:
Filling out the registration forms

- Knxei file and/or knxprod file contains already a lot of information.
  - Missing information has to be filled out manually in the various tab sheets of the embedded registration forms.
Filling out the registration forms

This sheet contains information about the hardware

### KNX DATASHEET FOR HARDWARE

<table>
<thead>
<tr>
<th>Certification case</th>
<th>General Application</th>
<th>HW DS</th>
<th>SW DS</th>
<th>Overview DP</th>
<th>CRT Summary</th>
</tr>
</thead>
</table>

#### 2.6 Product family

#### 2.7 Product type

#### 3 TEST REQUIREMENT CLASS OF KNX DEVICE

##### 3.1 Test Class (according to Volume 8/1)

- Physical Layer certified? [ ]
- Stack certified on used processor? [ ]
- Additional processor? [ ]

##### 3.2 Registration Number Stack (Please contact stack provider to get this number)

##### 3.3 Used bus access unit

- Certified BCU [ ]
- Certified BIM [ ]
Filling out the registration forms

This sheet contains information about the software

| Certification case | General Application | HW DS | Overview DP | SW DS | CRT Summary |

### 9 SOFTWARE DESCRIPTION

#### 9.1 Application Program 1 Name + Version:

<table>
<thead>
<tr>
<th>Name</th>
<th>Version</th>
<th>Target Ets Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-Mode without extra plug in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S-Mode with extra plug in</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*This plug in is not in conflict with any of the management procedures as stipulated in Volume 3/5/2*

| E-Mode | | |
| PB | | |
| Ctrl server | | |
| Ctrl client | | |
| LTE | | |
| PC tool via non-KNX connection | | |

#### 9.2 Configuration

#### 9.3 Functional Block Compliance

(See volume 6/1 for more information)
### Overview Datapoint types

<table>
<thead>
<tr>
<th>Application</th>
<th>Name of implemented</th>
<th>Function Text</th>
<th>Object Size</th>
<th>ComC</th>
<th>Ad</th>
<th>Datapoint Type</th>
<th>Description</th>
<th>Remarks KNX</th>
</tr>
</thead>
<tbody>
<tr>
<td>00CB 10</td>
<td>Glass Push Button 4f Plus, Switch 2f</td>
<td>Push buttons 1 / 2</td>
<td>Blinds Down/Up</td>
<td>1 Bit</td>
<td>0</td>
<td>[1.8] DPT_UpDown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00CB 10</td>
<td>Glass Push Button 4f Plus, Switch 2f</td>
<td>Push buttons 1 / 2</td>
<td>Dimming on/off</td>
<td>1 Bit</td>
<td>0</td>
<td>[1.1] DPT_Switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00CB 10</td>
<td>Glass Push Button 4f Plus, Switch 2f</td>
<td>Push button 1</td>
<td>Push button short</td>
<td>1 Bit</td>
<td>0</td>
<td>[1.1] DPT_Switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00CB 10</td>
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<td></td>
</tr>
</tbody>
</table>

This sheet contains a list of all your objects and their datapoint types.
### Filling out the registration forms

This sheet contains summarized information for the certification department.
### Filling out the registration forms

**Here you need to describe the differences between the main product and the OEM product**

<table>
<thead>
<tr>
<th>Certification case</th>
<th>General Application</th>
<th>OEM</th>
<th>CRT Summary</th>
<th>Reassessment</th>
</tr>
</thead>
</table>

#### REASSESSMENT / RECOMBINATION - MANUAL

- **REASSESSMENT**: The underneath product group was already registered / certified original product.
- **RECOMBINATION**: The underneath product group is a recombination of the reference product group.

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Name of product</th>
<th>Order ID</th>
<th>Application Name</th>
<th>Version</th>
<th>Original KNX</th>
</tr>
</thead>
</table>

**List of Modifications**

- REASSESSMENT
  - Binary code (S19) unchanged, less parameters/objects: no tests
  - Binary code (S19) unchanged, more parameters/objects: re-tests
  - Binary code (S19) changed: re-tests
  - Binary code (S19) unchanged, only new parameters added: full re-tests
  - Binary code (S19) unchanged: new parameters address other location

- Other (clearly indicate which changes):
Filling out the registration forms

• Which fields are to be filled out manually?
  – General Application Form
    • Is the submitted hardware already registered before?
    • Registration for KNX or KNX & EIB?
    • Showing product on KNX.org website?
Filling out the registration forms

- Which fields are to be filled out manually?
  - Hardware Datasheet
    - Select difference between master – product group members
    - Select the used standards for CE declaration
    - Indicate whether Physical Layer is certified
    - Indicate whether the stack used on processor is certified.
    - Insert the stack registration number
      - Ask your stack provider for this information
    - Select the used transceiver and the Microcontroller
    - Select the KNX Connector type for bus connection
Filling out the registration forms

• Which fields are to be filled out manually?
  – Software Datasheet
    • Is there an extra plug-in needed?
    • Note:
      – For revision of existing products, KNX A will continue to accept registrations of the corresponding plug-ins or upgrades of existing plug-ins for 5 years after release of ETS5 (i.e. until October 2019)
      – For new products with a newly developed plug-in, the use of the Device Configuration App (DCA) concept is mandatory. Applications for certification of such devices will no longer be accepted if not based on the DCA concept from two years after the release of ETS 5 onwards (i.e. as of October 2016)

• Select the Configuration mode
  – S-Mode
  – PB-Mode
  – Ctrl-Mode
  – LTE-Mode
Filling out the registration forms

• **Which fields are to be filled out manually?**
  – Overview DP
    • Most of the fields are filled out automatically here
    • If you were however unable to select the correct Datapoint type (See Volume 3/7/2), then you can enter the Datapoint Type in the column “Visible Description” in case of ETS3 target version.
    • It is possible to provide KNX Association with additional information in the sheets to avoid additional iterations
  • **Note:**
    – Provide information in English
    – Avoid using generic Datapoint Types (e.g. 1.xxxx). If using generic Datapoint Types, state the reason
Filling out the registration forms

• Which fields are to be filled out manually?
  – Reassessment or OEM
    • Select exactly which option is applicable for your case:
      – Binary code (S19) unchanged; More objects, more parameters?
      – Binary code (S19) unchanged; Less objects, less parameters?
      – Binary code (S19) changed;
      – State other changes in field “Other”.
  – OEM
    • Select exactly which option is applicable for your case:
      – Labelling
      – Colour
      – Modified housing,
      – State other changes in field “Other”
Filling out the registration forms

- **Which fields are to be filled out manually?**
  - **Withdrawal**
    - Enter the product / application program with KNX registration number that you want to withdraw here
      - It is possible to submit a new version of a certain application program and at the same time, withdraw the old version.
Which files to send to KNX Association?

- Send both knxei file and registration documents to KNX Association
  - After successful registration manufacturer will receive a knxrcd file, containing the registration status
  - Manufacturer has to import this knxrcd file in his MT project. Unregistered → ”Registered”.
  - Manufacturer can now distribute knxprod files to his customers.
  - Manufacturer can already use the **KNX logo** on the product for a *quick market entrance.*
Registration process: Summarized

Customer

3
Knxprod file or vdx file

Manufacturer

3

1
Registration documents

Product entry: knxei file

1

KNX Association

2
Product entry Knxrcd file

2
Certification of product

• Certification Procedure

Manufacturer now has 6 months time to provide KNX Association with:

1. **Interworking test report** of application program

• Carried out by a [KNX accredited test lab](#), predominantly with EITT Test Tool available from KNX Association.

• Which tests?
  
  • **Interworking and Functionality Tests**: it is checked whether
    » the product functions as declared by the manufacturer and
    » if declared data point types conform to specifications
  
  • Behaviour on **initialisation, reset, power failure**
  
  • Value of **routing counter** used in telegrams
  
  • **Telegram rate limitation** for cyclical functions
### CE-declaration of Conformity

The following general KNX requirements for electrical safety, environmental conditions and EMC apply:

If an appropriate harmonized EN or IEC product standard exist, in which:

<table>
<thead>
<tr>
<th>HBES mentioned in scope of standard?</th>
<th>HBES not mentioned in scope of standard?</th>
<th>No appropriate IEC, then use Generic standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK, to use this product standard, but also:</td>
<td>OK, to use this product standard, but also:</td>
<td>OK, to use this generic standard, but also:</td>
</tr>
<tr>
<td>- 63044-3 (electrical safety)</td>
<td>- 50491-2 (Environmental conditions)</td>
<td>- 50491-2 (Environmental conditions)</td>
</tr>
<tr>
<td></td>
<td>- 63044-3 (electrical safety)</td>
<td>- 63044-3 (electrical safety)</td>
</tr>
<tr>
<td></td>
<td>- 63044-5 (EMC requirements)</td>
<td>- 63044-5 (EMC requirements)</td>
</tr>
</tbody>
</table>
3. **(System Software test report)**
   - Only in case the manufacturer had submitted a new stack for registration.
   - Which tests?
     - When *closed device*: Physical, Link, Network, Transport, Application Layer tests
     - When BCU (bus access unit with PEI): additional test of local services (data exchange on PEI)

   - When above documents \( (1 + 2 + (3)) \) are received, KNX Association will provide manufacturer with another knxrcd file containing the “certification” status.
   - Manufacturer can now distribute knxprod files containing the “certification” status to his customers.
Certification of product

- **Note:**
  - KNX A will also provide a signed PDF certificate for all “Main” products.
  - For OEM products: a signed PDF certificate is only sent on explicit request by the manufacturer.
Certification process: Summarized

1. Manufacturer
   - Hardware tests
     - Tests according to EN IEC 63044-x

2. KNX Test lab
   - Software tests
     - List of datapoint types, product manual,…
   - EITT Test samples
   - If available: EITT test proposals

3. CE
   - KNX Certificate

4. KNX Association
   - KNX Interworking test report
Thanks.

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Certification Manager

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