Online Learning Session – Competence Center Europe - Smart Buildings

From home office to home office

ABB STOTZ-KONTAKT GmbH
Heidelberg / Germany
Agenda

Overview Combi- Standard- Professional Switch Actuators

ETS Application “KNX Combi-, Standard-, Professional Switch Actuators”
KNX Combi-, Standard-, Professional Switch Actuators - ETS Application

Overview Combi- Standard- Professional Switch Actuators
**KNX Combi-, Standard-, Professional Switch Actuators - ETS Application**

**Overview**

**Main Features**

- Big range of devices – 29 components, and more will come
- Split into 3 types:
  - **Combi Switch Actuators** – Combination of switching and shutter functionality with innovative manual operation, up to 24 channels and small size (Module Width)
  - **Standard Switch Actuators** - ‘High-runner’ types for all standard switching applications
  - **Professional Switch Actuators** - High-switching-capacity devices with extended functionality for industry standard applications
- Devices are prepared for future extensions
- **Coming soon …**
  - ABB i-bus® Tool integration
  - Professional Switch Actuators with Energy functions
**KNX Combi-, Standard-, Professional Switch Actuators - ETS Application**

Next Generation Switching

**Combi Switch Actuators**
- Compact + switch/shutter modes
- 8 (4MW), 16 (8MW) & 24 (12 MW) channels
- 6A, 10A & 16A - AC1 ratings
- 3 x 3 devices

**Standard Switch Actuators**
- 2, 4, 8 & 12 channels
- 6A, 10A & 16A - AC1 ratings
- 3 x 4 devices

**Professional Switch Actuators**
- 2, 4, 8 & 12 channels
- 16/20A C-load
- 2 x 4 devices

---

Residential

Applications

Commercial
KNX Combi-, Standard-, Professional Switch Actuators - ETS Application

ETS Application Combi Switch Actuator

Overview

ETS Application with comprehensive functions but satisfying user experience
- Templates for switch- and shutter functions
- Freely programmable logic independent of the output channels (AND, OR, Exclusive OR, GATE) and threshold functions
- Full functionality of shutter outputs (Safety/Weather alarm, automatic sun protection, scenes, blocking, forced operation), but no travel time detection
- Switch outputs with time functions (Staircase, Delay, Flashing), safety, forced operation, blocking, 16 scenes (1 byte)
- Central objects (switching, shutter functions, scenes)
- Colored hints simplify work
- ETS5 is required
**ETS Application with comprehensive functions and satisfying user experience**

**Application like Combi Switch Actuator but without shutter functionality and parameter manual operation**

- Templates for switch functions
- Freely programmable logic independent of the output channels (AND, OR, Exclusive OR, GATE) and threshold functions
- Switch outputs with time functions (Staircase, Delay, Flashing), forced operation, blocking, 16 scenes (1 byte)
- Central objects (switching and scenes)
- Colored hints simplify work
- ETS5 is required

The objects "Safety priority 1-3" are enabled on the Safety/weather alarms page. The order specifies the priority of the safety functions.

Observe the contact life and switching cycles per minute. For more information, see product manual.
### Configuration

- Enabling of channels
  - Better overview, less parameter and group objects

---

#### Configuration

<table>
<thead>
<tr>
<th>Device settings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable output A + B</td>
<td>✓</td>
</tr>
<tr>
<td>Enable output C + D</td>
<td>✓</td>
</tr>
<tr>
<td>Enable output E + F</td>
<td>✓</td>
</tr>
<tr>
<td>Enable output G + H</td>
<td>✓</td>
</tr>
</tbody>
</table>
**KNX Combi-, Standard-, Professional Switch Actuators - ETS Application**

**ETS**

### Configuration

- Enabling of channels
  - Better overview, less parameter and group objects
- Enabling of logic and thresholds
  - 24 individual logic or threshold functions for each Switch Actuator, independent of the outputs, therefore more flexibility compared with former devices
KNX Combi-, Standard-, Professional Switch Actuators - ETS Application

ETS

Configuration

- Enabling of channels
  - Better overview, less parameter and group objects
- Enabling of logic and thresholds
  - 24 individual logic or threshold functions for each Switch Actuator, independent of the outputs, more flexibility compared with former devices
- Limitation for sent telegrams
  (3…100 telegrams in a period of 0…59 s)
  - Time 0s means deactivated limitation
  - Important with multi channel devices in case of central functions and status telegrams, it avoids bus overload
KNX Combi-, Standard-, Professional Switch Actuators - ETS Application

ETS

Device Settings

- Central Group Objects
  - to be used to switch several device outputs at the same time
  - Advantage: Less group address assignments, especially for multi channel devices
  - Available for switching, shutter control (only Combi SAH/S) and scene
  - In the parameter block ‘Basic settings’ of each channel it can be decided whether the channel shall be part of the central function
Manual Operation (only Combi SAH/S)

- Enable/Disable manual operation
  - with disabling no manual operation at all
  - Automatic reset after adjustable time (30s ... over 18h) avoids malfunction (no action on telegrams)
  - After end of manual operation also the actual and via KNX telegram changed status (Object End manual operation) can be shown
  - Object to end manual operation at any time but not to disable it
  - Objects for status manual operation
  - Object enable/disable manual operation
- Hint: Manual operation can be disabled by higher priorities, e.g. alarms
**KNX Combi-, Standard-, Professional Switch Actuators - ETS Application**

**ETS**

**Safety/(Weather alarms, only Combi SAH/S)**

- Distinction between switch and shutter functionality (SAH/S)
- Switching
  - Safety priority 1, 2, 3 (1 highest, 3 lowest priority)
  - Monitoring of telegram possible with cyclical sending of safety signal (like monitoring of wind alarm with shutters)
  - Application: In case of fire alarm all lights are to be turned on with highest priority, not possible to switch off locally
- Shutter
  - Wind alarm 1,2,3 / Rain / Frost
  - Priority of wind, rain and frost adjustable
  - Monitoring of sensor signals (standard due to security reasons) can be deactivated
- For both switching and shutter additionally forced operation and blocking at the dedicated parameter blocks available
**Logic/Gate/Threshold**

- Parametrization of logic and thresholds
  - 24 individual logic or threshold functions for each Switch Actuator, also independent of the outputs
  - Functions: AND, OR, Exclusive OR, GATE and Threshold
  - two inputs, one output
  - Assignment of logic also directly to switch or shutter outputs possible, with individual reactions on the result of the logic

- **AND/OR/Exclusive OR**
  - Inversion of result
  - Send result to KNX: not needed if result is linked internally to an own output
  - Defined status of inputs in case of bus voltage recovery, important for safe operation
Logic/Gate/Threshold

- **GATE (Enabling/Disabling of telegrams)**
  - To enable/disable telegrams at certain situations, e.g. a time program
  - Disabling with logical 1 or 0
  - Inversion of result
  - Send result to KNX: not needed if result is linked internally to an own output
  - Defined status of inputs in case of bus voltage recovery, important for safe operation
**Logic: Result linked to internal output**

Input 1 → **GATE** → Output 1

Control input 1

Input 2

Logic 1

Input 3

OR

Output 1

Logic 2

Channel X

**Table:**

<table>
<thead>
<tr>
<th>Logic/threshold</th>
<th>Logic</th>
<th>Connection</th>
<th>Group object “Connection A”</th>
<th>Group object “Connection B”</th>
<th>Invert result</th>
<th>Send result to KNX</th>
<th>Output reacts to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logic threshold 1 Logic</td>
<td>Connection A</td>
<td>GATE: Control Input 1</td>
<td>5/2/1</td>
<td></td>
<td></td>
<td></td>
<td>Logic/threshold 2</td>
</tr>
<tr>
<td>Logic threshold 2 Logic</td>
<td>Connection B</td>
<td>GATE: Control Input 1</td>
<td>5/2/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logic threshold 1 Logic</td>
<td>Connection A</td>
<td>OR: Control Input 1</td>
<td>5/2/3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logic threshold 2 Logic</td>
<td>Connection B</td>
<td>OR: Control Input 1</td>
<td>5/2/4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Function of the logic gate:**

- OR

**Group objects:**

- Connection A
- Connection B

**Invert result:**

- 1
- 0

**Send result to KNX:**

- On
- Off

**Output reacts to:**

- Logic/threshold 2
- Reaction on result “0”
- Reaction on result “1”
KNX Combi-, Standard-, Professional Switch Actuators - ETS Application

ETS

Logic: Result sent to KNX

![Diagram showing the logic of sending results to KNX]

- **Logic 1**: Gate
- **Input 1**: Control input 1
- **Output 1**: Logic 1
  - **Logic threshold 1**: Logic = Connection A
  - **Logic threshold 2**: Logic = Result
- **Input 2**: Control input 2
- **Output 2**: OR
  - **Logic threshold 1**: Logic = Connection A
  - **Logic threshold 2**: Logic = Result
- **Input 3**: Control input 3
- **Output 3**: KNX Telegram

Function of the logic gate:
- OR

Group object "Connection A" after bus voltage recovery:
- Input: 1, Output: 0

Group object "Connection B" after bus voltage recovery:
- Input: 0, Output: 0

Invert result: False

Send result to KNX: True

Send value of group object: After change or on request
KNX Combi-, Standard-, Professional Switch Actuators - ETS Application

ETS

Logic/thresholds

- **Threshold** (Value comparison with fixed value to take action)
  - Different data point types for input selectable:
    - Percent (1 byte), Meter pulses (1 byte or 2 byte), Temperature (2 byte floating), Lux (2 byte)
  - Upper and lower threshold (Hysteresis)
  - Thresholds changeable via KNX group object
  - Results (1, 0, unchanged) for overshooting and undershooting the thresholds, but also for value between both thresholds
  - Minimum time in all three situations adjustable, to hide short term and invalid situations
  - Send result to KNX: not needed if result is linked internally to an own output
  - **Application:** Depending on brightness level outside light is to be turned on or off with hysteresis
Templates

- Templates allow to parametrize a certain number of functions to be assigned to individual channels
  - Same concept as for DALI Gateways DG/S x.64.x.1
- Available for switch or shutter outputs (only Combi SAH/S)
  - Split into different parts (parameter pages)
  - Switch Actuator: Basic settings, Safety, Delay for switching ON/OFF, Staircase lighting, Flashing, Scene assignment
  - For each output and parameter block the templates can be used or individual adjustment can be done (Switch actuator X, e.g. Basic settings)
- **Advantage:** Save of time and work during parametrization as typically channels need the same adjustments
Selection of actuator type (switching or shutter) per channel

Please note: Default parametrization is shutter! Why?

- Inverse default parametrization (switching) can destroy a motor as the two related output can be closed at the same time!
- For switch functionality the parameter has to be changed at the beginning

- In case of switch actuator selection the second output of a pair (e.g. A/B or C/D) can be an actuator as well or inactive
- Enable scene, priority/safety functions and time functions (staircase, on/off delay, flashing) per channel
**KNX Combi-, Standard-, Professional Switch Actuators - ETS Application**

**ETS**

**Switch Actuator channel X – Basic settings**

- Available per channel for individual configuration or template
- Normally open or closed contact
- Reaction to central object to create individual ‘central’ function
- Reaction on logic/threshold function
  - Though logic is independent of any output, it can be directly assigned to the channel
- Status feedback (on/off) via separate group object
- Status information 1 byte, e.g. forced/manual operation or time function active
- Reaction on bus voltage failure and recovery or after ETS download

![Diagram: Basic settings page from ETS application]

©ABB
May 25, 2020 | Slide 23
Available per channel for individual configuration or template

Reaction on safety functions (to be activated under safety alarms), forced operation or blocking per channel
  • On/off/unchanged/no reaction

Switching Status on reset of these functions
  • On/off/refreshed KNX state/no reaction
  • Refreshed KNX state (any background function during safety/forced operation/blocking will be carried out)

Priority (high to low) of all 5 safety functions:
  Safety priority 1 → Forced operation → Safety priority 2
  Safety priority 3 → Block
Switch Actuator channel X – Staircase lighting

- Available per channel for individual configuration or template
- Visible if this time function is enabled at parameter block Functions
- Staircase lighting can be started again or extended to up to 5 x staircase time by pressing the local push button up to 5 times
- Staircase lighting switchable, e.g. to be turned off during an event (permanent on)
- Warning before switching off the staircase lighting: Either via telegram or quick switching off/on of the light
  - Switching off/on up to 5 times and warning time adjustable
- Staircase lighting can be enabled/disabled via group object
- Staircase time changeable via group object
- Restart staircase lighting after end of permanent on
- Timeline: Staircase time – warning – warning time – end (off)
Switch Actuator channel X – Delay for switching ON/OFF

- Available for individual configuration or template
- Visible if this time function is enabled at parameter block
- Functions
- Time for delay on or delay off
- Can be enabled/disabled via group object
- Application: Delayed on and off of ventilation
Switch Actuator channel X – Flashing

- Available for individual configuration or template
- Visible if this time function is enabled at parameter block
- Functions
- Activation with value 0 or 1 or both
- Time for on and off (min. 1s)
- Number of flash cycles up to 100
- After flashing relay on or off or refreshed KNX state (any background functions during flashing will be carried out)
- **Application**: Flashing light in a building together with intrusion alarm
Switch Actuator channel X – Scene assignment

- Available for individual configuration or template
- Activation for of up to 16 scenes 1 byte
- Recall and storage of scenes via 1 byte object
- Scene recall also via group object 1 bit (for scene 1 ... 4)
  - Additional object to activate the scene (see also DALI Gateway Premium DG/S x.64.5.1)
  - Advantage: 1 bit is easier to handle for some sensors than 1 byte
- Free allocation of the 16 scenes to scene number 1 ... 64
- Delay time until scene is active (up to 12 hours), e.g. 5min. delayed action after leaving the house
**KNX Combi-, Standard-, Professional Switch Actuators - ETS Application**

**1 byte Light Scene**

Short: Calling KNX scene No. 6 “Good Morning”

- **Dim Actuator UD/S**
  - Bedroom: A - n.A.
  - Staircase: B - n.A.
  - ...

- **Switch Actuator SA/S**
  - Kitchen light: A - n.A.
  - Kitchen socket outlets: B - ON
  - Corridor light: C - n.A.
  - Bathroom light: D - n.A.
  - Children room: E - n.A.
  - ...

- **Combi Switch Actuator SAH/S**
  - Kitchen: A - 0%
  - Living room: B - 0%
  - Bathroom: C - 0%
  - Bedroom: D - 0%
  - Children room: E - n.A.
  - ...

- **Security Module:** Unset

- **RTC:** Comfort mode

- **DG/S x.64.5.1:**
  - Living room light: 75% and 3,200K
  - RGB LED strips: -n.A.
  - ...

- **HUE:**
  - Lights n.A.

- **SONOS:**
  - Music - PLAY

n.A. - no assignment
KNX Combi-, Standard-, Professional Switch Actuators - ETS Application

Online Learning Session

Homepage

www.abb.com/KNX

→ Products and Downloads
  → Lighting Control
  → Search Options DG/S

– Product Manual
– CAD Drawing
– Installation and Operating Instructions
– Specification Text
– ETS Application
– Selection Table
– CE & RoHS Declaration of Conformity
– • • •
KNX Combi-, Standard-, Professional Switch Actuators - ETS Application
Online Learning Session

Product Range Overview

Smarter Solutions for Home and Building Automation
ABB i-bus KNX
Product Range Overview 2019/2020

- Including KNX DALI Gateway Premium DG/S x.64.5.1

LINK
Further information

Training & Qualification Database
- The database includes the following types of training content:
  - Application Manuals
  - E-Learnings
  - Presentations
  - Video tutorials
  - Webinar slides and videos
  - www.abb.com/knx or https://go.abb/ba-training

Youtube
- Channel “ABB Home and Building Automation”
  - https://www.youtube.com/user/ABBibusKNX
Training & Qualification Calendar

In addition to the online modules and the traditional training programs offered by your local ABB sales team, we offer a variety of on-site trainings conducted by our specialists at different ABB training facilities.

In this Training & Qualification Calendar you can find the educational events that are taking place during 2020.

If you are interested in a training please click the training and you will be forwarded to register in “ABB MyLearning”

www.abb.com/knx or https://go.abb/ba-training

→ Training and Qualification
→ Training Calendar
Disclaimer

The information in this document is subject to change without notice and should not be construed as a commitment by ABB. ABB assumes no responsibility for any errors that may appear in this document.

In no event shall ABB be liable for direct, indirect, special, incidental or consequential damages of any nature or kind arising from the use of this document, nor shall ABB be liable for incidental or consequential damages arising from use of any software or hardware described in this document.

© Copyright [2020] ABB. All rights reserved.