KNX Combi-, Standard-, Professional Switch Actuators – Applications with ETS Programming

Online Learning Session – Competence Center Europe – Smart Buildings

Thorsten Reibel, Jürgen Schilder, Stefan Grosse, Martin Wichary & Olaf Stutzenberger

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Online Learning Session – Competence Center Europe - Smart Buildings

ABB STOTZ-KONTAKT GmbH
Heidelberg / Germany
Agenda

ETS Application
- Safety Function and forced operation
- Scenes
- Threshold
- Staircase function
- Flashing function

Switching of ...
- DC-Loads
- 3-phase Loads
- LED-Loads
KNX Combi-, Standard-, Professional Switch Actuators – Applications and ETS Programming

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

Applications

Residential

Commercial
Threshold, - Staircase, - central functions and forced oper.

In an event hall the illumination is dimmable (DALI Lighting). If the illumination in the hall is dimmed down to a certain level, the lights at the exits and the entrance area behind (both operated via Switch Actuator) of the hall have to be switched on due to safety reasons.

Actually the light in the entrance area has a staircase time function. When the entrance area light has to be switched on due to low dimming level in the hall, the light has to be permanent on.

There is a central function which turns off all lights with higher priority as any local operation (Forced operation). In case of fire alarm all lights (hall, exit, entrance) are switched on with highest priority.

Solution: Switch Actuator with threshold function, safety priority function, forced operation, Staircase function with permanent on.
Scene

Three light scenes are required for the hall, exit lights and entrance area. All scenes can be operated with 1 bit object.

<table>
<thead>
<tr>
<th>Scene</th>
<th>Hall</th>
<th>Exit Light</th>
<th>Entrance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scene 1</td>
<td>80 %</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Scene 2</td>
<td>60 %</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Scene 3</td>
<td>30 %</td>
<td>ON</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Solution: Scene functionality both in Switch Actuator and DALI Gateway
Flash Light

An additional intrusion alarm system will be installed. In case of intrusion alarm all lights have to flash.

Challenge:
Entrance area light has already staircase function in use, second time function is not possible.
DALI Gateway DG/S has no flashing function in the application available.

Solution: Flashing function of an unused channel in the Switch Actuator, Status on/off of this output connected to the lights for flashing.
Switch Actuator and DC-Load

In some projects low voltage DC networks are required, 5V, 12V 24V or even 230V DC

Advantage is the energy efficiency due to missing power supplies and transformers, therefore an issue for green buildings

Challenge is switch off of especially inductive DC loads, as an electric arc might appear at the contacts of the relays, with AC load thanks to the zero crossing of the sinusoidal curve less problematic to extinguish

Our Switch Actuators can operate DC voltage, in the technical data and also the selection table of Switch Actuators visible:

– Professional Switch actuator: 20 A with 24V, resistive load

The higher the voltage the lower the current the relays can stand, with 230 V finally only some mA

Solution is using an external DC relay, operated via one switch actuator channel (6A)
Switch Actuator and 3-phase Load

In some projects 3-phase loads must be controlled, like motors, ovens or light bands. To be observed is the current, but also the need for simultaneous switching of the phases, important for motors.

For choosing the right Switch Actuator regarding current the technical data and the selection table can be used.

KNX Switch Actuator can not guarantee parallel operation of three relays at the same time, therefore in case of simultaneous switching needed, an external installation contactor must be installed, controlled by one switch actuator output (6A).

ABB has these products, e.g. installation contactor type ESB.
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Next Generation Switching

Switch Actuator and LED-Load

LED Lighting is becoming more and more standard in buildings for efficient lighting, therefore important to be operated with KNX Switch Actuators.

Power of LED is less compared with conventional lighting and same brightness.

LED Loads are challenging in terms of switch on behaviour (capacitive behavior), which has to be observed.

The inrush current of LED is higher than of conventional lamps like halogen light or bulbs, therefore the possible power per actuator channel for LED is lower.

See selection table Switch Actuators:
- **Combi** and **Standard/Professional**

<table>
<thead>
<tr>
<th>LED lamps/energy saving lamps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combi 250 W</td>
</tr>
<tr>
<td>Standard 250 W</td>
</tr>
<tr>
<td>Professional 250 W</td>
</tr>
</tbody>
</table>

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Homepage

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→ Products and Downloads
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– Product Manual
– CAD Drawing
– Installation and Operating Instructions
– Specification Text
– ETS Application
– Selection Table
– CE & RoHS Declaration of Conformity
– • • •

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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](http://www.abb.com/knx) or [https://go.abb/ba-training](https://go.abb/ba-training)

Youtube
- Channel “ABB Home and Building Automation”
  • [https://www.youtube.com/user/ABBibusKNX](https://www.youtube.com/user/ABBibusKNX)
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