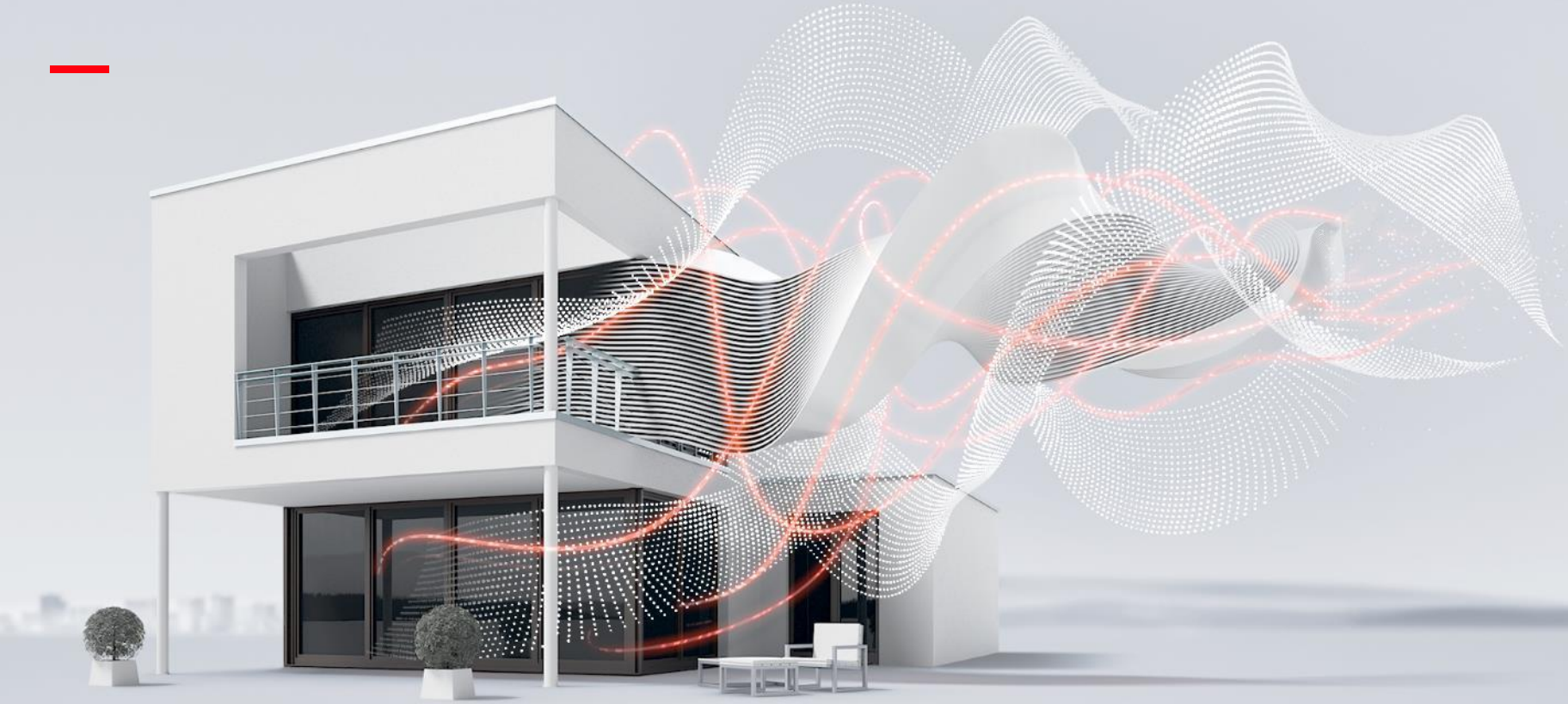

HEIDELBERG, DECEMBER 2021

ABB i-bus® KNX Switch Actuators – ETS Application V1.1

Webinar – Competence Center Europe – Smart Buildings

Juergen Schilder, Thorsten Reibel, Marc-Andre Hahn, Michael Rall, Stefan Grosse & Olaf Stutzenberger

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ABB i-bus® KNX Switch Actuators – ETS Application V1.1

Overview Switch Actuators ABB i-bus® KNX

Overview ETS Application 1.0

New ETS Application 1.1

Firmware Update

Application Update

ETS App Update Copy Convert

Bus coupler (BCU) key

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Next Generation Switching

Combi Switch Actuators (Market launch Q4/2019)

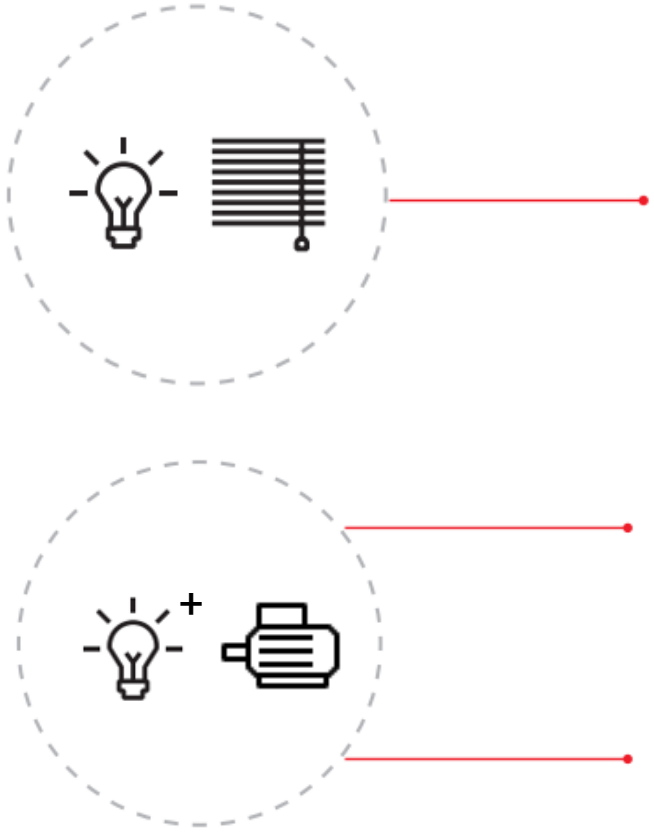
– The 9 combi devices are combining two applications: switching and shading. The products are ideally made for residential usage to offer greatest flexibility.
With innovative Keypad for manual operation

Standard Switch Actuators (Market launch Q1/2020)

– These 12 devices are building the standard when it comes to switching applications for commercial buildings. During the development we focused on providing a cost optimized selection of products, that matches the needs of commercial projects

Professional Switch Actuators (Market Launch Q1/2020 and Q4/2020 for Switch Actuators with Energy Functions)

– The professional series includes 8 Switch Actuators made for high switching capacity. This portfolio has been developed to suit the high requirements of industry standards.
Optional feature: Energy Functions



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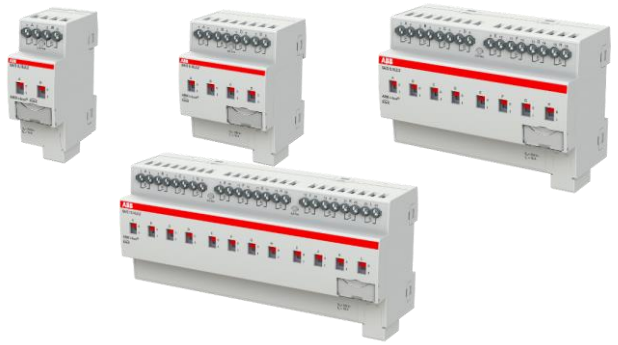
Next Generation Switching

Combi Switch Actuators

- 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 + energy function
- 2 x 4 devices

Residential ← Applications → Commercial

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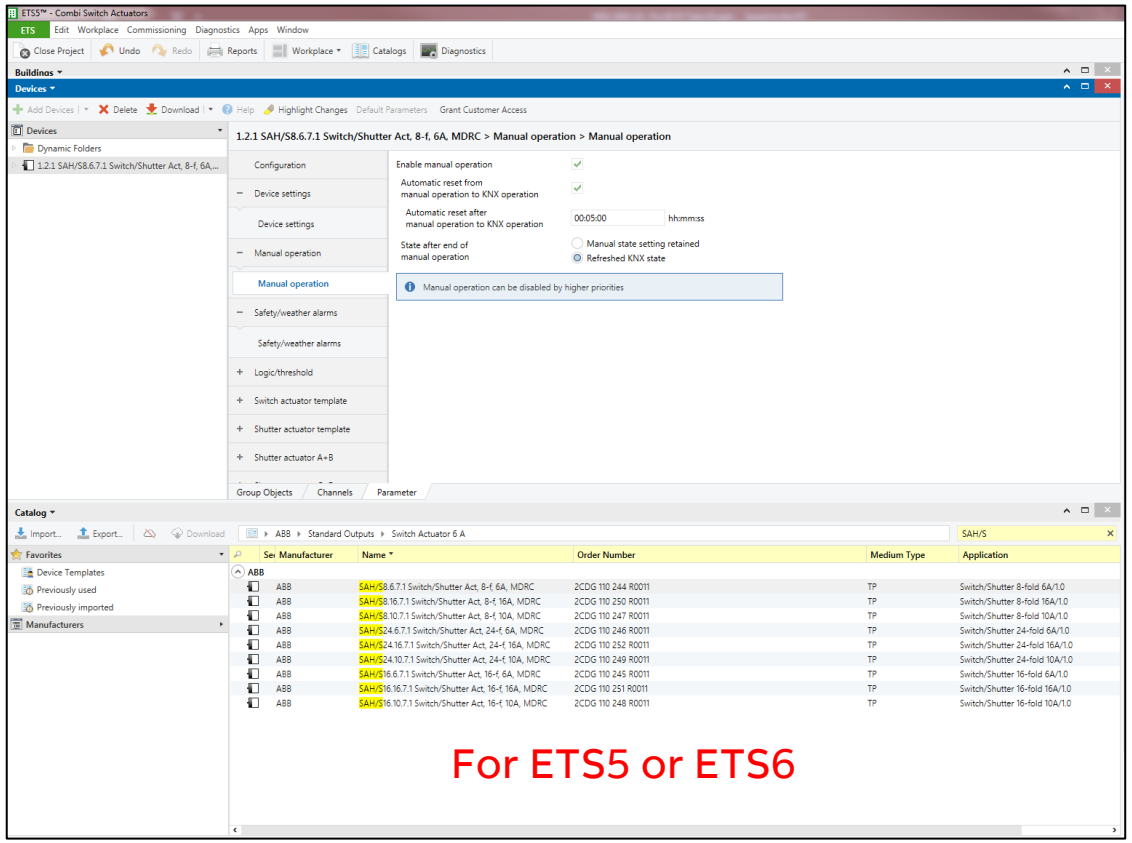
ETS Application

Overview ETS Application Version 1.0 with Market Launch

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
- Combi Switch Actuators SAH/S: Full functionality of shutter outputs with two channels together (Safety/Weather alarm, automatic sun protection, scenes, blocking, forced operation), but no travel time detection
- Switch outputs with time functions (Staircase, Delay, Flashing), safety priority, forced operation, blocking, 16 scenes (1 byte)
- Central objects (switching, shutter functions, scenes)
- Colored hints simplify work
- SA/S with energy functions: Energy consumption, energy groups, load monitoring, load shedding, contact status supervision



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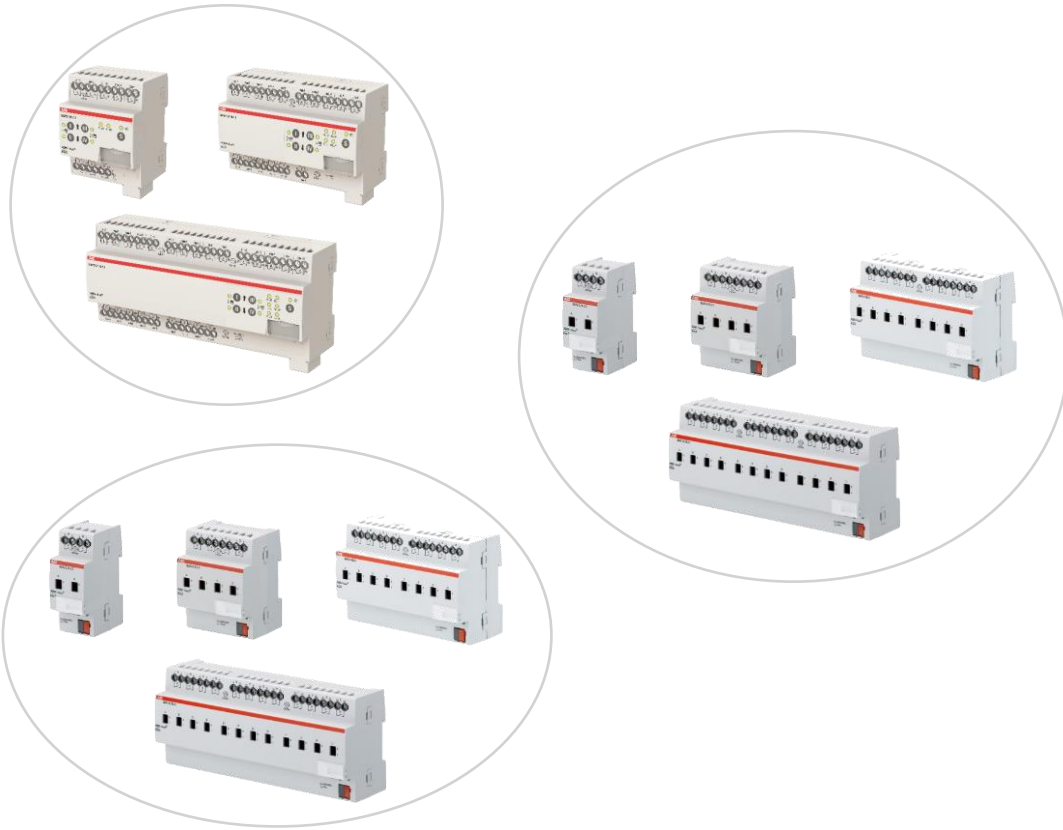
Next Generation Switching

Existing Training Content for ABB's KNX Switch Actuators

Switch Actuator webinars and learning sessions available in our database as presentations and videos

- Webinar Combi Switch Actuators SAH/S (Nov. 2019)
  Video Presentation
- Webinar Standard/Professional Switch Actuators (Feb. 2020)
  Video Presentation
- Webinar Switch Actuators with Energy Functions (Nov. 2020)
  Video Presentation
- Online Learning Session Switch Actuators - ETS Application (May 2020)
  Video Presentation
- Online Learning Session Switch Actuators - Applications and ETS Programming (May 2020)
  Video Presentation
- Online Learning Session Combi Switch Actuators SAH/S - Shutter Functions (June 2020)
  Video Presentation
- Online Learning Session Switch Actuators - Energy Functions in Detail (Nov. 2020)
  Video Presentation



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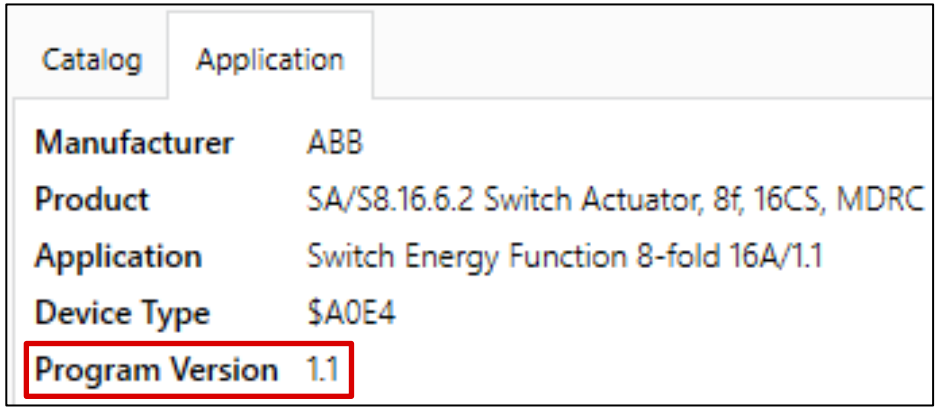
ETS Application

Overview of Changes with ETS Application Version 1.1

- Load Shedding
- Logic/Threshold
- Scenes and Safety Priority
- Output names
- Wording
- Bug fixing



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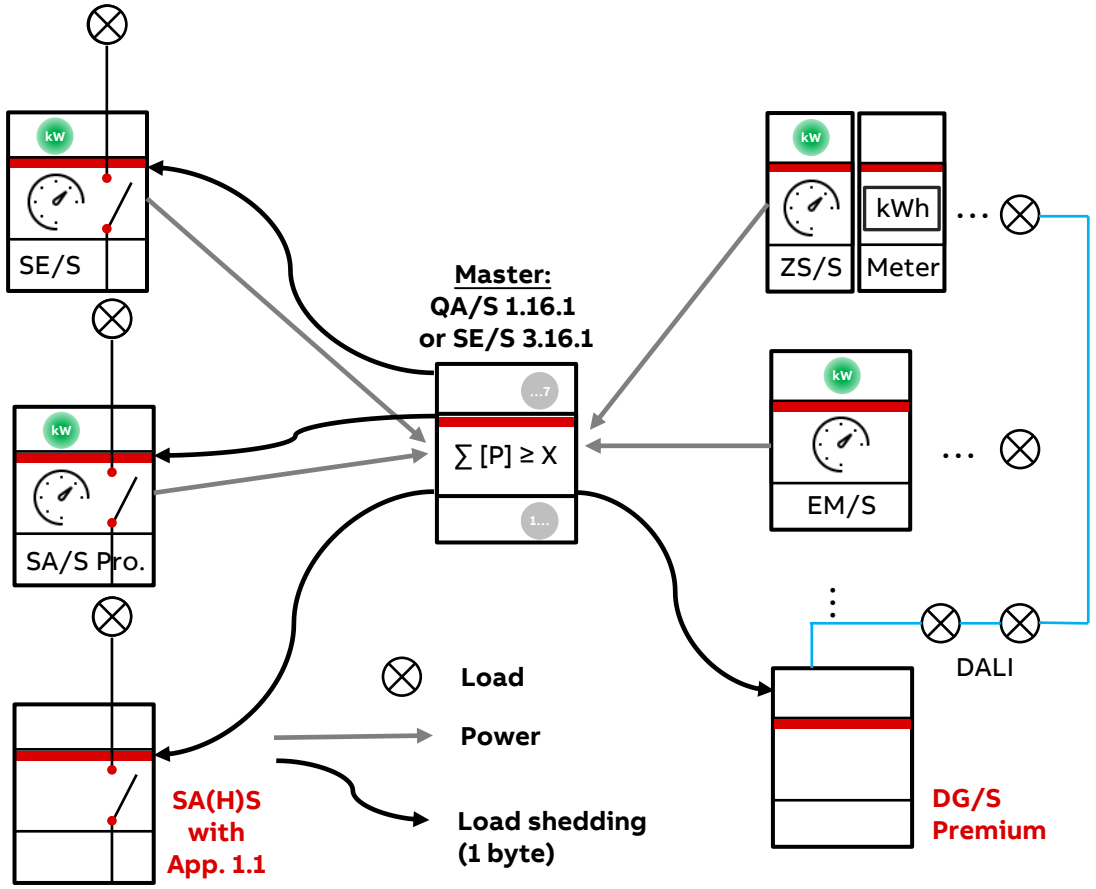
Load Shedding

Load Shedding

Target: Prevention of electrical load peaks in a building due to limited power and installation availability or significant costs

- The master, Energy Analyzer KNX QA/S or Energy Actuator SE/S, sums up all received power values and manages depending on adjusted load limit the connected loads (turn off/on) with priority (1 byte object)
- Loads not able to send any direct energy consumption values e.g. SA(H)S with application 1.1 can also be integrated into load shedding via an energy meter (Meter interface ZS/S 1.1 or KNX Energy Module EM/S 3.16.1)
- Remember: DALI Gateway Premium DG/S x.64.5.1 can be integrated in Load shedding via 1 byte object as well
- Energy Analyzer KNX QA/S can also send 1 bit telegrams per shedding stage to integrate other KNX devices



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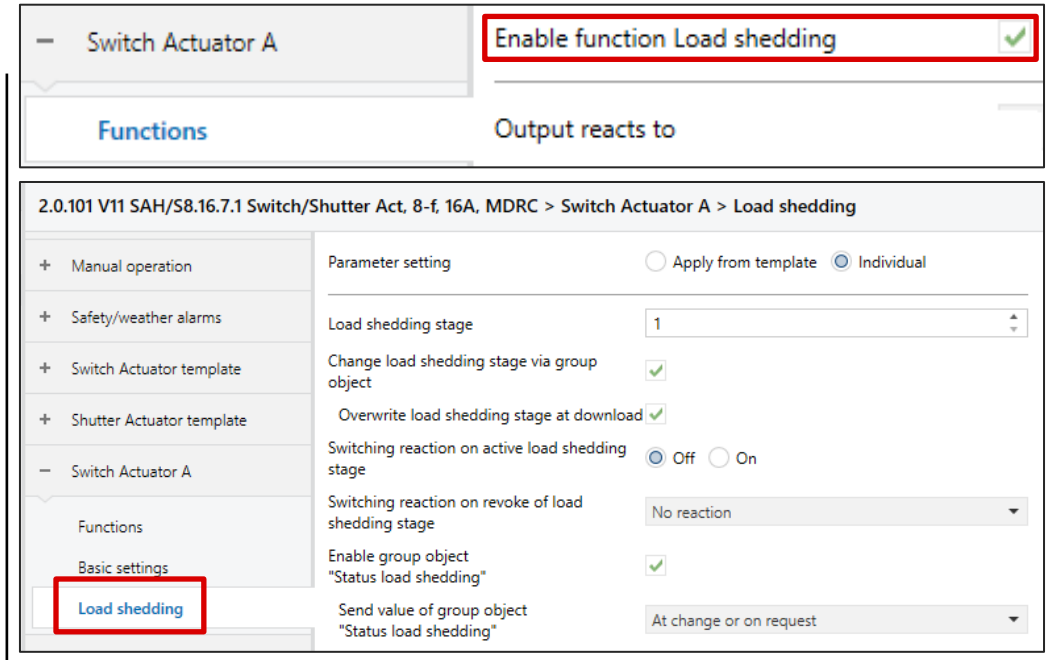
Load Shedding

Load Shedding

Function ‘Load Shedding’ is now available in every Switch Actuator output of all SA(H)/S, in terms of switching on and off the outputs

- Same parameters available as in the Switch Actuators with energy functions, but no measurement of course
- Enable load shedding per channel in page ‘Functions’
- All needed group objects (depending on parametrization)
  - ‘Receive load shedding stage’ from the master e.g. Energy Analyzer QA/S or Energy Actuator SE/S (1…8 stages, central object per device, 1 byte DPT 236.001)
  - ‘Set load shedding stage’ needed to change the parametrized load shedding stage
  - ‘Status load shedding’ sent back (0 – inactive, 1 – active)
- More Details about Load Shedding: Online Learning Session Switch Actuators - Energy Functions in Detail (Nov. 2020) Video Presentation



Central - Load shedding:	Receive load shedding stage	1 byte
Channel A - Load shedding:	Set load shedding stage	1 byte
Channel A - Load shedding:	Status load shedding	1 bit

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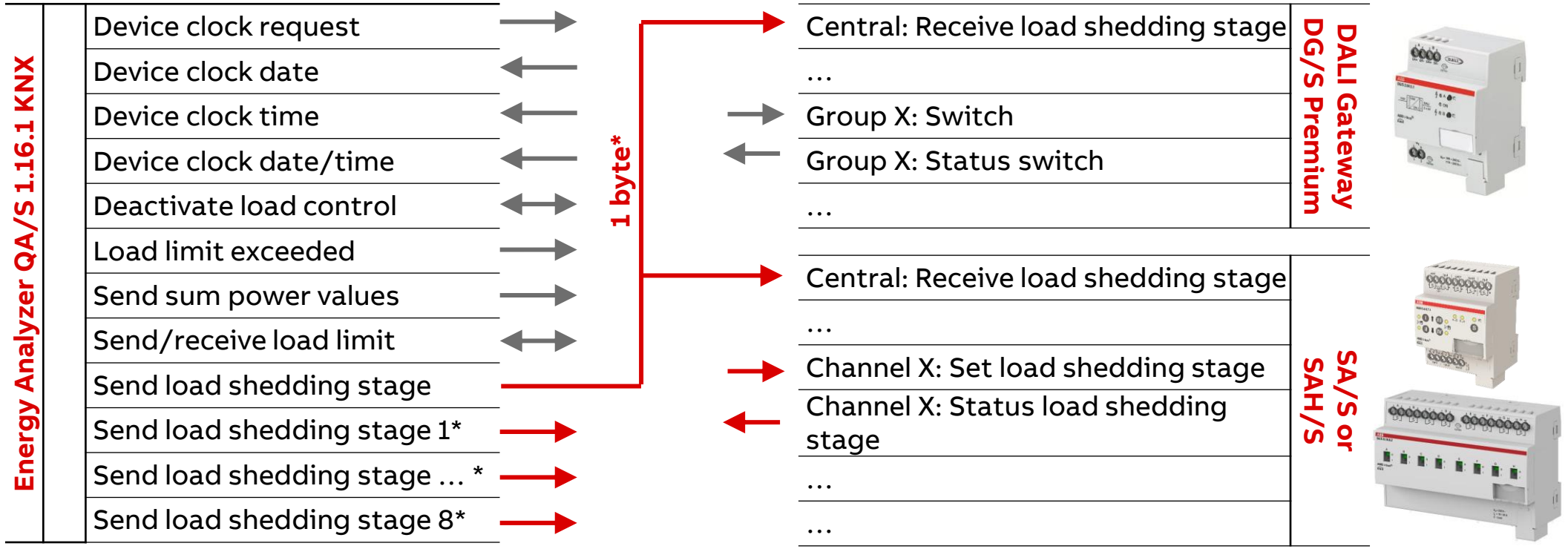
Load Shedding

Example: QA/S and different Actuators – Assignment of Group Addresses “Load Shedding”



* 1 bit objects for other actuators

* 1 byte DPT 236.001 priority control

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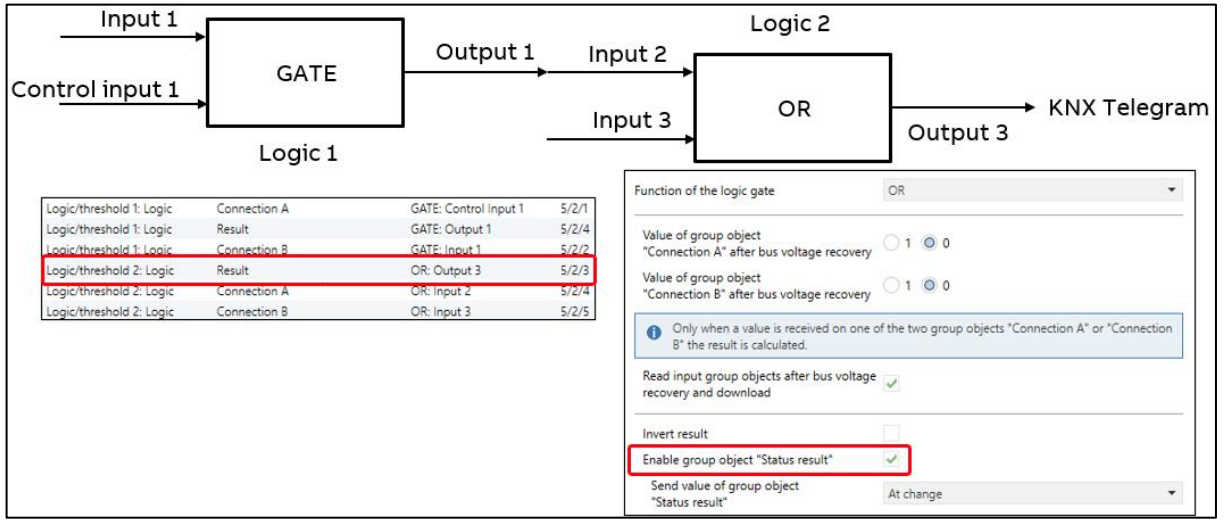
Flexible Logic in ABB‘s Switch Actuators

Existing Logic

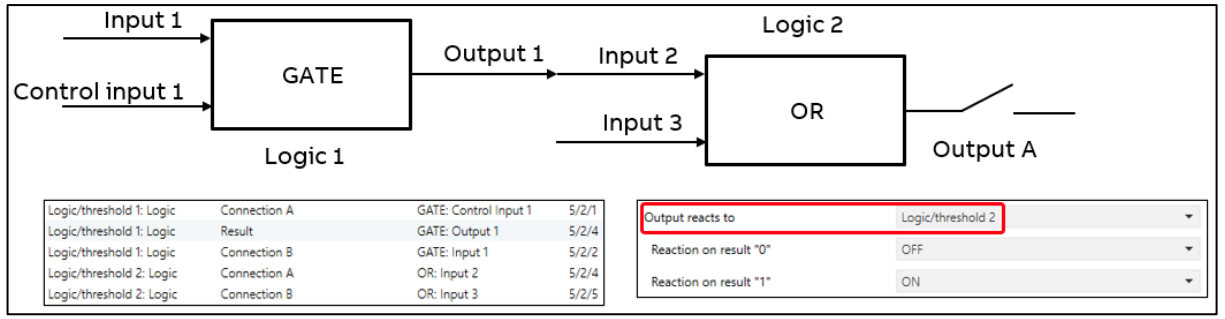
– Parametrization of logic and thresholds

- 24 individual logic or threshold functions for each Switch Actuator
- Functions: AND, OR, Exclusive OR, GATE and Threshold
- Two inputs, one output
- Result of the logic either linked to internal output or sent to KNX or both

Result sent to KNX



Result linked to internal output



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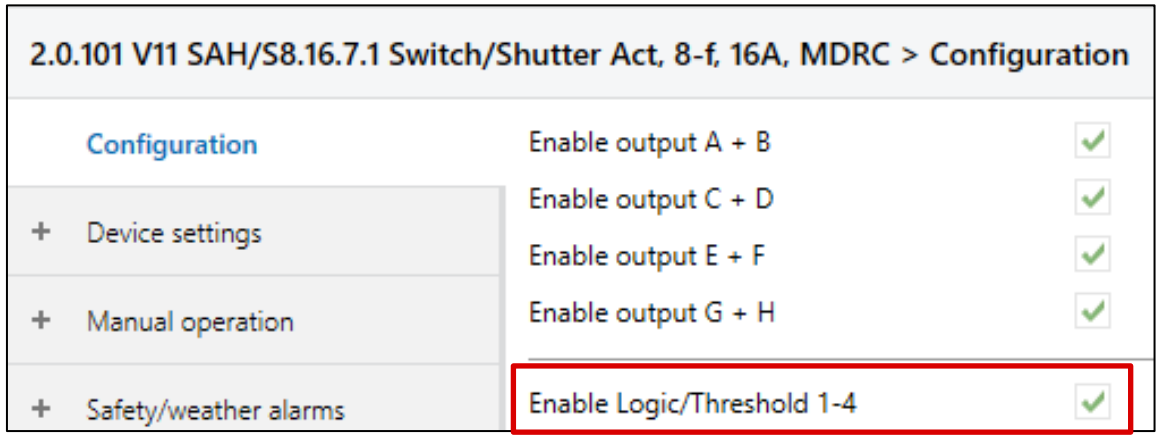
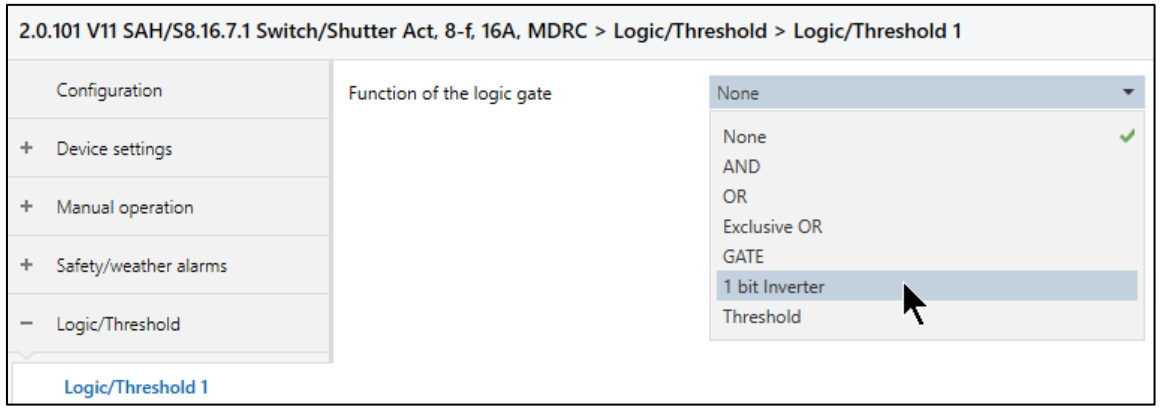
Optimized Logic/Threshold Function

Optimized Logic

- Extension of logic with additional important function: Inverter
- Enable logic under Configuration
- Select type of logic at logic/threshold x
  - AND
  - OR
  - Exclusive OR
  - GATE
  - **1 bit Inverter**
  - Threshold





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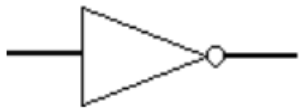
Optimized Logic/Threshold Function

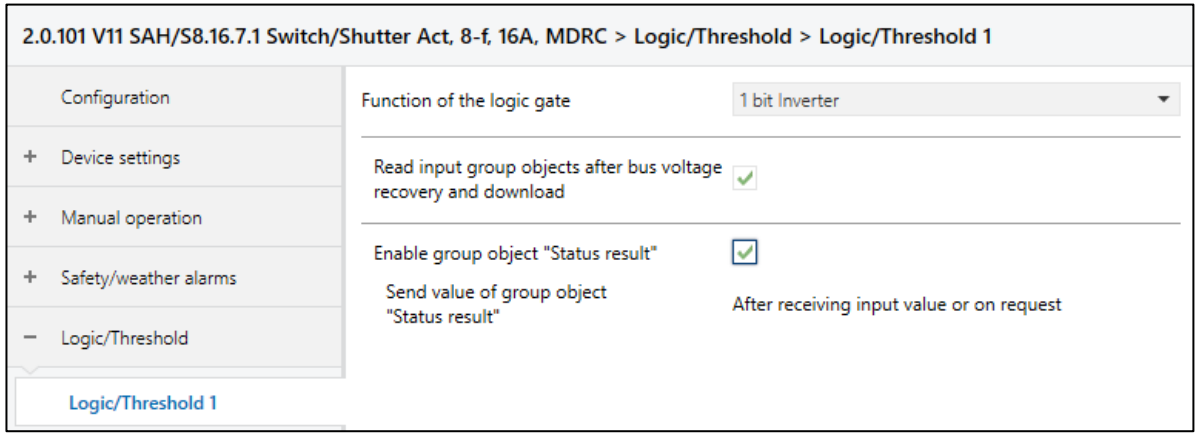
Optimized Logic

- Inverter allows to invert a 1 bit signal
- Often e.g. a status telegram has an inverted behavior to be processed and display
- Remember: Logic in our Switch Actuators can work independent of the outputs for any function

Inverter



Input	Output
1	0
0	1



Logic/threshold 1 - Logic:	Status result	1 bit
Logic/threshold 1 - Logic:	Connection A	1 bit

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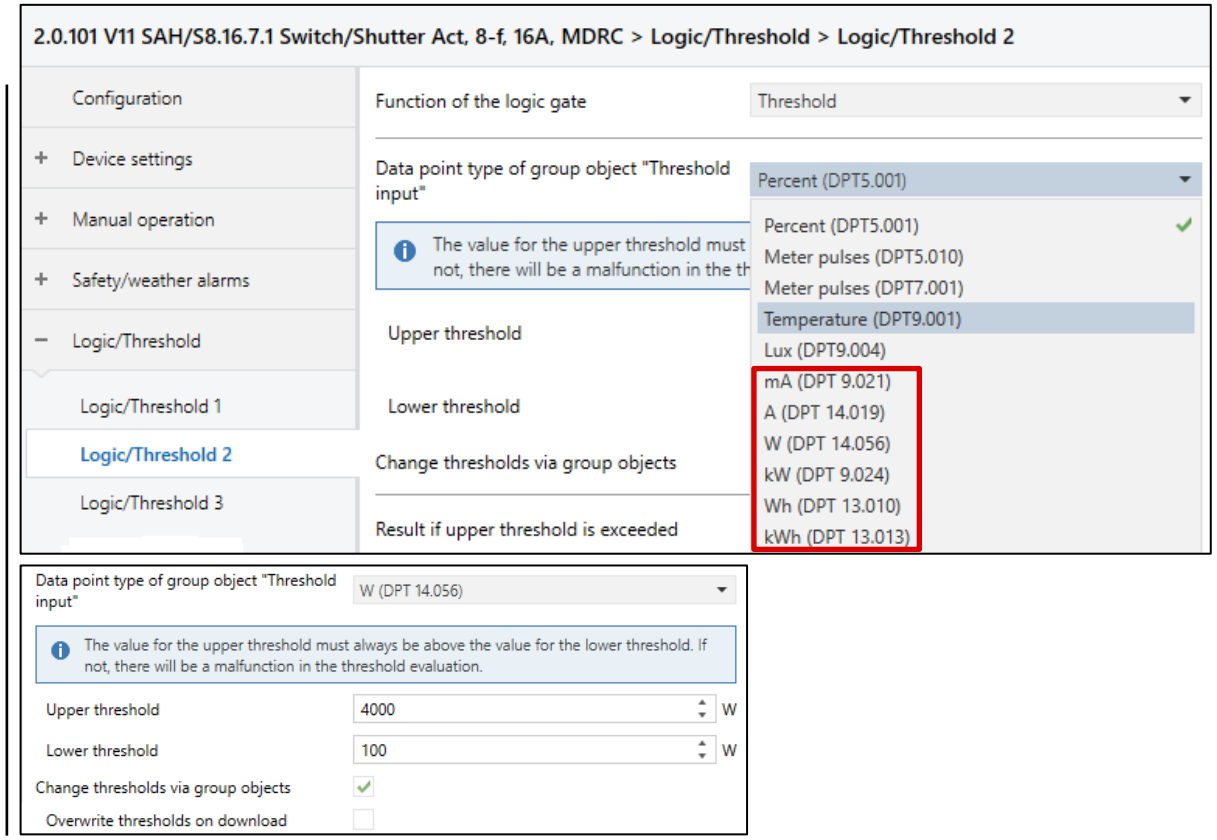
Optimized Logic/Threshold Function

Threshold Function

- Function Threshold
- Application:
  - Temperature below 2° Celsius → Frostalarm
  - Brightness level below a certain lux level → light fixtures next to exit doors 100% on
- New data point types (DPT) are available
  - A, mA, W, kW and kWh
  - typical parameters upper/lower threshold (Hysteresis) and change thresholds via group object
- Supports especially ABB's Switch Actuators with energy functions, e.g. creating a message in case of exceeding/ under-shooting a certain electrical value
  - Motor current of a fan too low → alarm
  - Energy consumption reaches x kWh, message and eventually turn off the load



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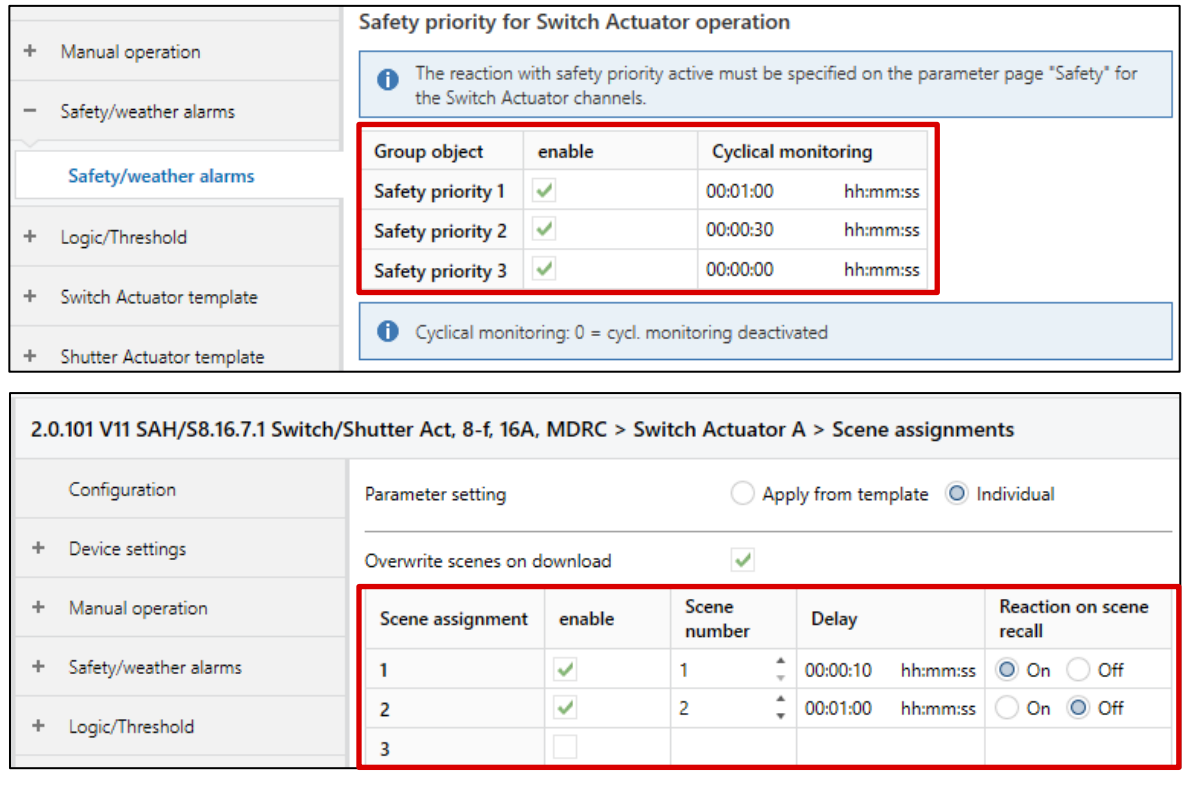
Scenes and Safety Priority

Parametrization Scenes and Safety Priority

- Safety Priority
  - 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

- Safety Priority and Scenes
  - New way of parametrization in a table for a better overview
  - Similar to scenes and sequences in DALI Gateway Premium



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Output Names

Output Names for better overview

- For each switching output an individual name can be parametrized
- Name will be adopted for all group objects of this output
- In addition visible in the headline and on the left side of the parameter page describing the output page
- Advantage
  - Better overview in ETS, easier allocation of group addresses to objects
- Please note: (Status Dec. 2021)
  This feature exists for the standard and professional range of ABB's Switch Actuators right now, it is not yet implemented for Combi Switch Actuators SAH/S, but will be available soon

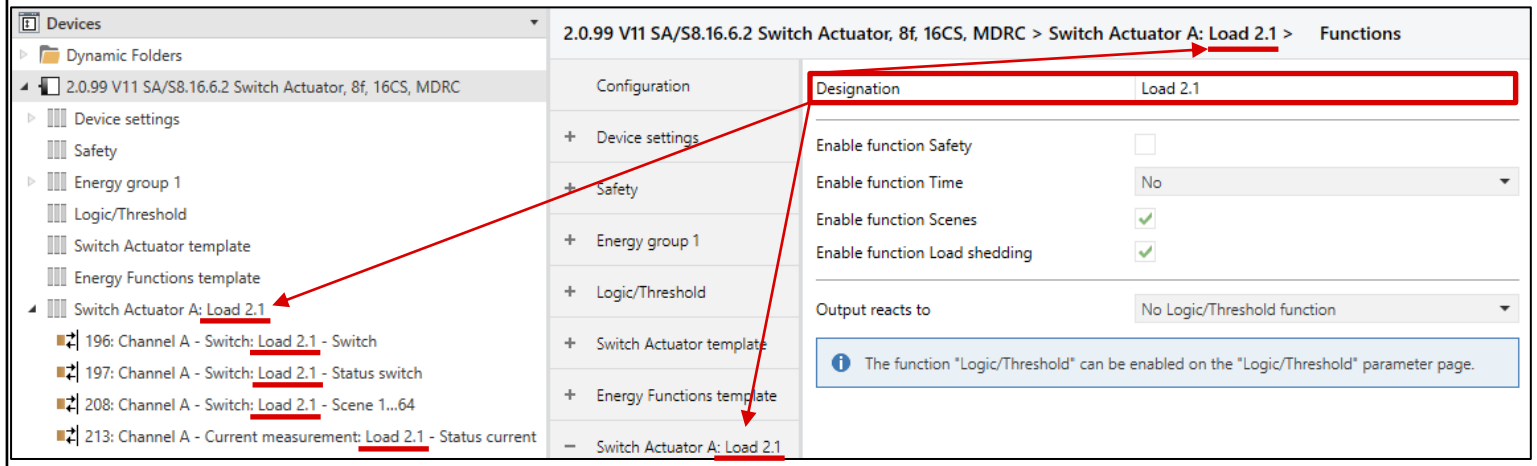


ABB i-bus® KNX Switch Actuators – ETS Application V1.1

Overview

General Information/Update

With the new ETS Application 1.1, all Switch Actuators (Combi, Standard, Professional with and without Energy Function) are unified in wording, user interface and function

– ETS Application V1.1 (available 17th December 2021)

– Firmware (available 17th December 2021)

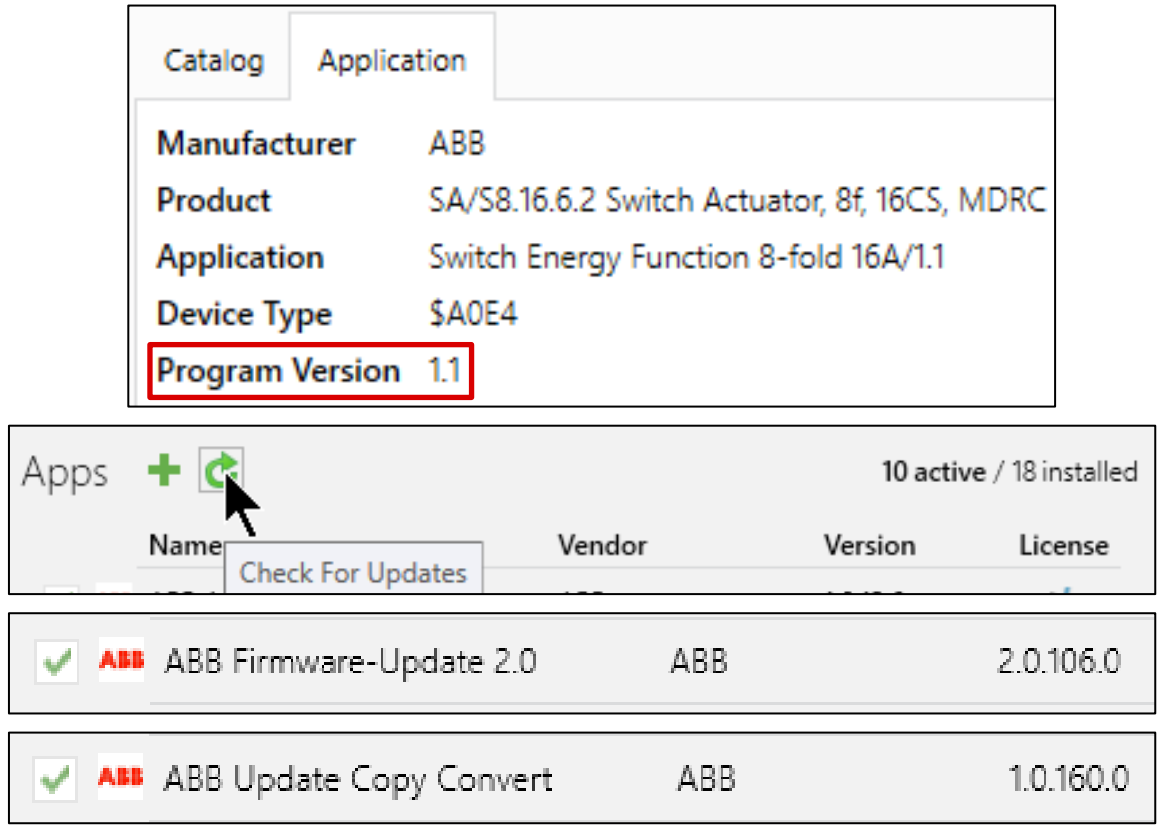
Combi	V 0.1.7
Standard / Professional	V 0.1.4
Professional with Energy Function	V 0.1.2

  - Use ETS App Firmware update V2.0
  - It replaces the App ABB KNX Bus Update

– To update the application for actuators in a project with existing parametrization and group address assignment

  - Use ETS App Update Copy Convert (new version 1.0.160.0)

Product manual and technical data sheets are internationalized DE / EN / FR / ES / IT / RU / PL / NL (available 20th December 2021)



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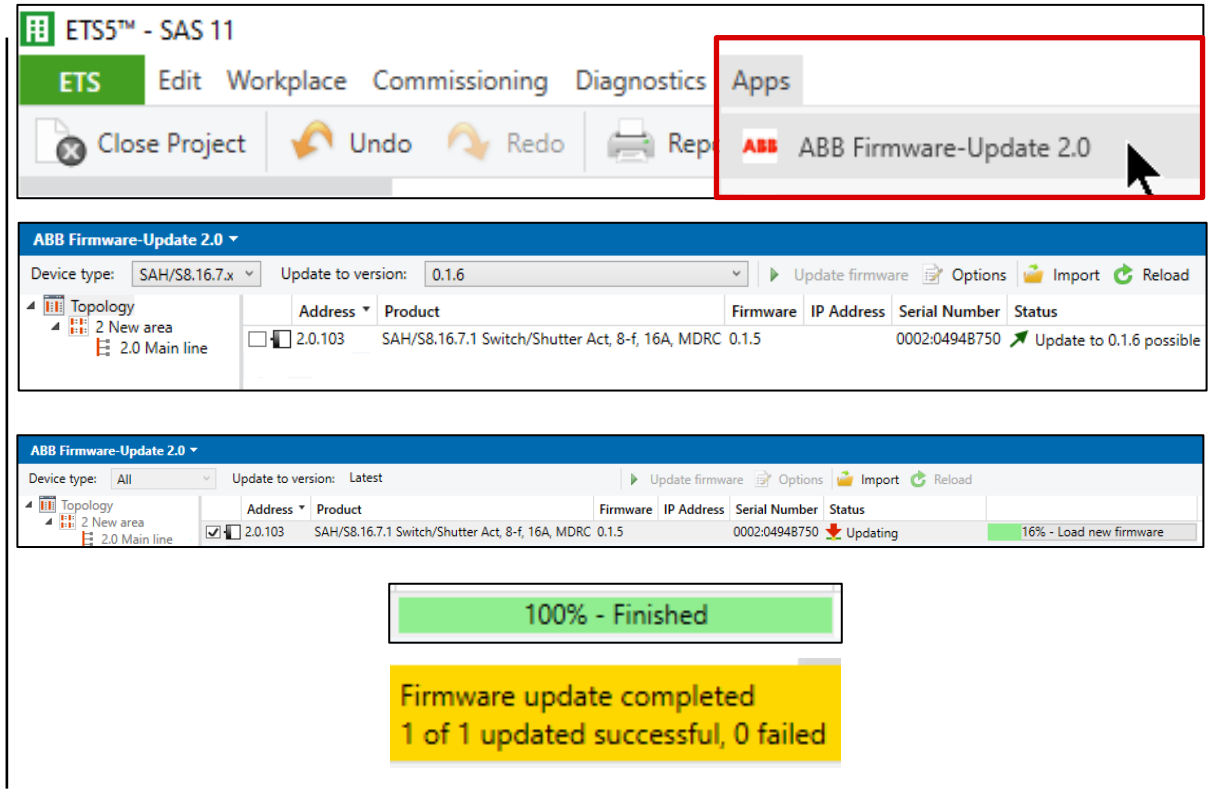
Updates

Firmware update

With the new App ABB Firmware update V2.0 (replacing App Bus update) it is easy to carry out the firmware update for ABB i-bus® KNX components

- Select App Firmware update 2.0 from drop down menu Apps
- Apps are available under knx.org in the shop ETS Apps
- Select Device type, e.g. ‘All’ or here SAH/S
  - All related products in the project are shown
  - Automatic search for new firmware version in the database of our server is started and possible update is shown
  - No need for downloading any firmware files to the PC
- Similar to the replaced Bus update App:
  - Options: e.g. force update to an older version
  - Import: Import of existing firmware files (normally no need)
  - Reload: Update status, search again for new version
- After few minutes update succeeded



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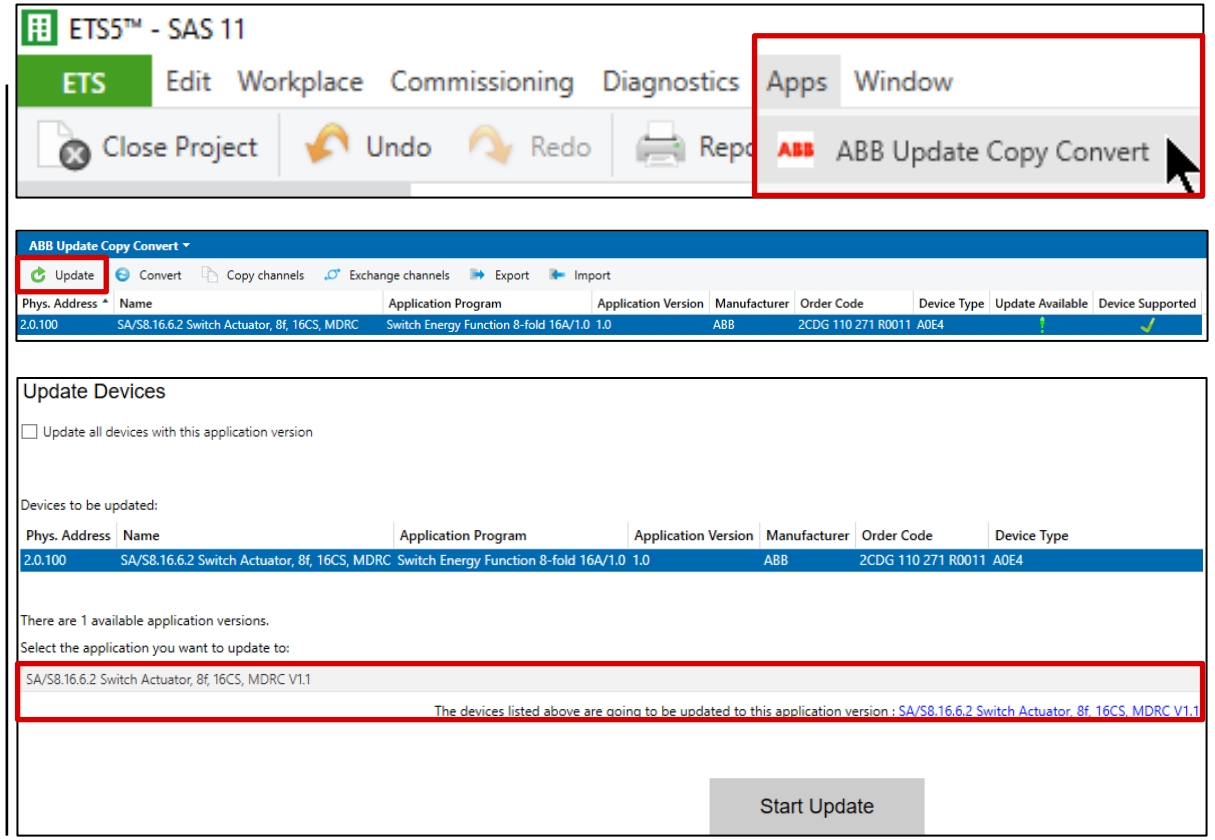
Updates

Application update

With the App ABB Update Copy Convert it is easily possible to update an ABB products in an existing project with existing parametrization to the actual application version

- Insert the same product (SA(H)S) with version 1.1. into your project
- Select App ABB Update Copy Convert from drop down menu Apps
- Select the device (SAH/S or SA/S) with old application 1.0 in your project, device is visible in the App window
- Click on ‘Update’
- Window ‘Update Devices’ shows the device to be updated to the new version
- Start update and after short time process is completed
- More Details about this App: Webinar “Various Software Tools for KNX” (Feb. 2019) Video Presentation



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App ABB/BJE Update Copy Convert - Version 1.0.160.0

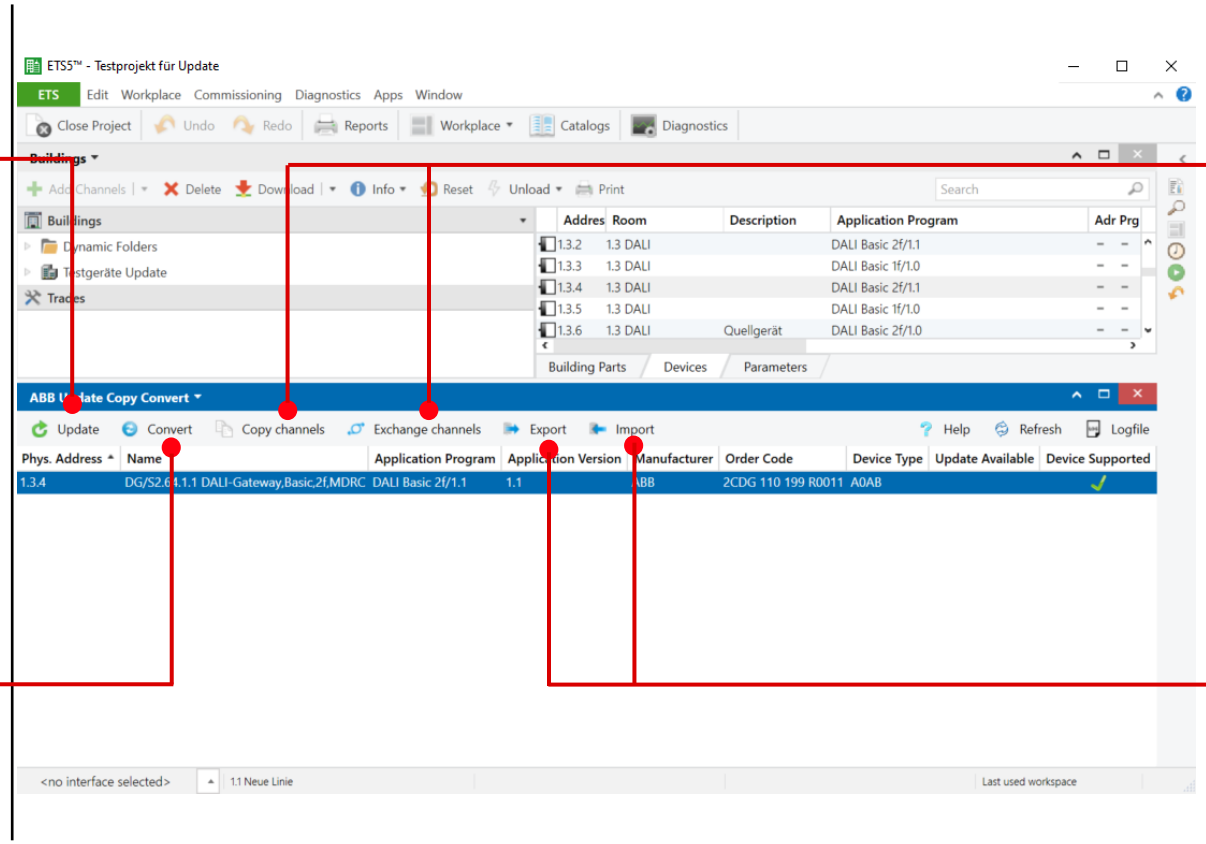
Software Name	Version	Release Date	Updates and Release Notes
ABB Update Copy Convert **BJE Update Copy Convert**	1.0.160.0	11/2021 (available)	Online update of the ABB Update Copy Convert 1.0.160.0 and BJE Update Copy Convert 1.0.16.0. This version contains the following new features in addition to normal bugfixes: – Support of ABB and BJE KNX devices under the same ETS-App (ABB Update Copy Convert / BJE Update Copy Convert) – Support of the new Switch Actuators version 1.1: Combi (SAH/S x.y.7.z), Standard (SA/S x.y.2.z), Professional (SA/S x.16.5.y) and Professional with Energy Function (SA/S x.16.6.2) – Improvements in the User interface and handling of the App, especially Update and Convert windows – New 'Report file' for Update and Convert functions – Please note (Status Dec. 2021): At the moment a Combi Switch Actuator SAH/S cannot be converted to a standard/professional version of SA/S

ABB i-bus® KNX Switch Actuators – ETS Application V1.1

ETS App Update Copy Convert - Main functions

Update

Upgrade or downgrade device(s) application(s)



Convert

Transfer a configuration from a source device to a destination device

Copy / Exchange

Copy and/or exchange channels within a device

Export / Import

Export a device configuration and import it on a compatible device

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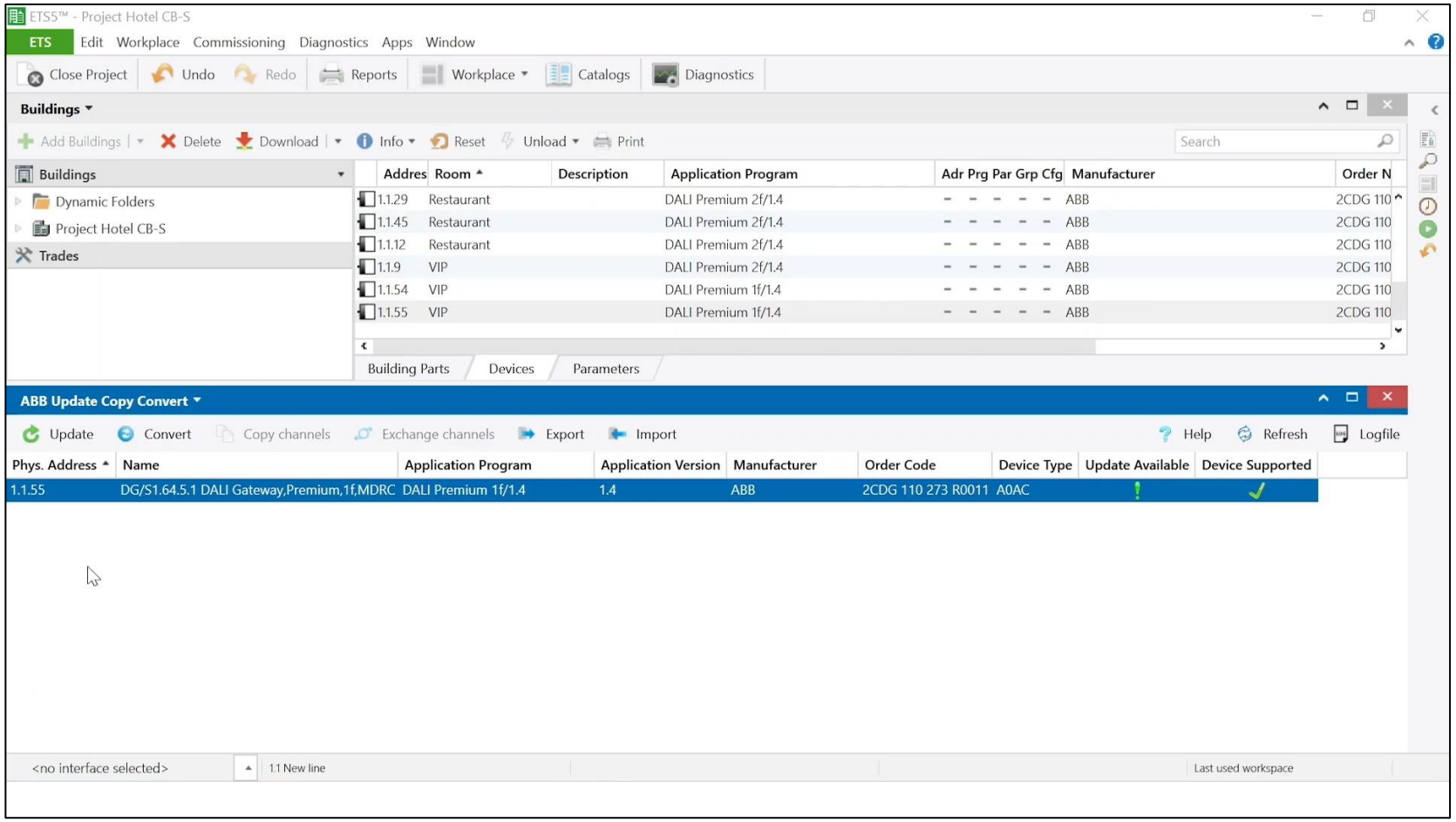
ETS App Update Copy Convert - Update

Update
Upgrade or downgrade device(s) application(s)



Video: https://search.abb.com/library/Download.aspx?DocumentID=9AKK107992A9905&LanguageCode=en&DocumentPartId=&Action=Launch

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ETS App Update Copy Convert - Update

Update – Example

System Integrator Peter M. configured 15 x ABB Switch Actuator Standard v1.0 in a new hotel in the city center

The new application v1.1 was released and the new load shedding functionality fits perfect the hotel energy/load management concept

Instead of updating 15 times, all devices can be updated with one single click

Save up to 90% update time*

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*Estimated example. Depending on the number of devices, the version of the application, etc., the time may vary.

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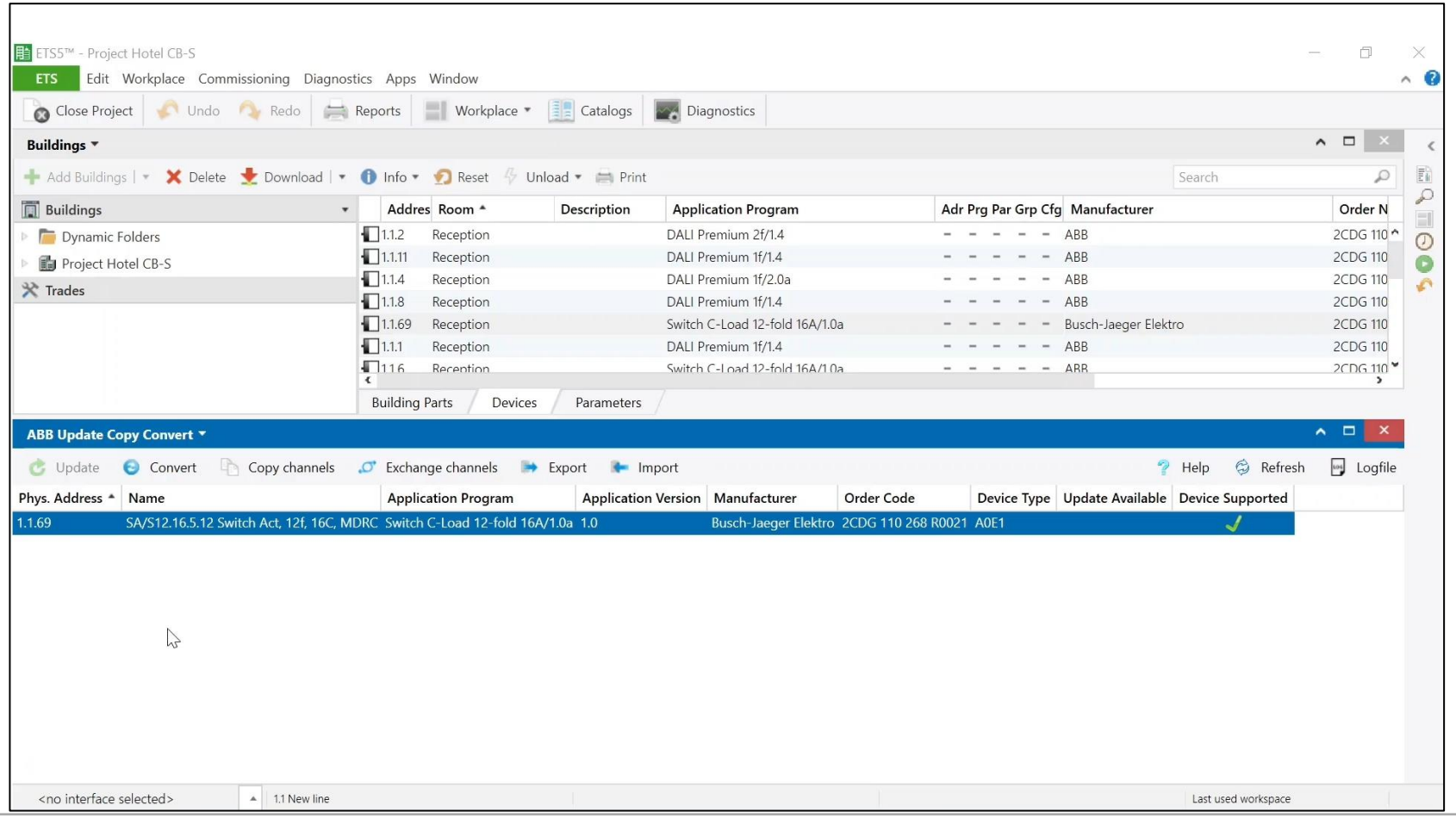
ETS App Update Copy Convert - Convert

Convert
Transfer a configuration from a source device to a destination device



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ETS App Update Copy Convert - Convert

Convert – Example

Systems Integrator Anna S. configured all switch actuators SA/S 12.16.5.2 on floors 1 and 2 of the new Safary Marketing headquarters

To keep track of energy consumption on the top floor it was decided to install SA/S 12.16.6.2 with Energy Function. Instead of configuring the SA/S with the Energy Function from the scratch, the configuration already available from the lower floors can be easily transferred via UCC and only the additional parameters need to be manually configured

Save up to 80% configuration time*

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*Estimated example. Depending on the number of devices, the version of the application, etc., the time may vary.

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ETS App Update Copy Convert - Copy and Exchange Channels

Copy / Exchange

Copy and/or exchange channels within a device

Copy functionality

ABB i-bus® KNX Switch Actuators – ETS Application V1.1

ETS App Update Copy Convert - Copy and Exchange Channels

Copy and Exchange Channels – Example

System integrator Marco J. configured channel A of the Valve Drive Controller VC/S 4.2.1 in the residential home of one of his best customers

Since channels B, C and D require the same configuration, he uses the ‘Copy channels’ function of the ETS-App UCC. Only the set points need to be adjusted on each channel

Once finished, he realizes that the installer swapped channels C and D. Marco quickly exchange the settings using the ‘Exchange channels’ function of the ETS-App

100% more flexibility

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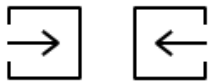
ABB i-bus® KNX Switch Actuators – ETS Application V1.1

ETS App Update Copy Convert - Export and Import



Export / Import

Export a device configuration and import it on a compatible device

Export functionality

ABB i-bus® KNX Switch Actuators – ETS Application V1.1

ETS App Update Copy Convert - Export and Import

Export and Import – Example

In his next project system integrator Marco J. realized the configuration for the Valve Drive Controller VC/S 4.2.1 is the same as the one from a previous project.

He exports the configuration from the source project and import it in the new one

The group addresses were not copied

Efficient work 24/7

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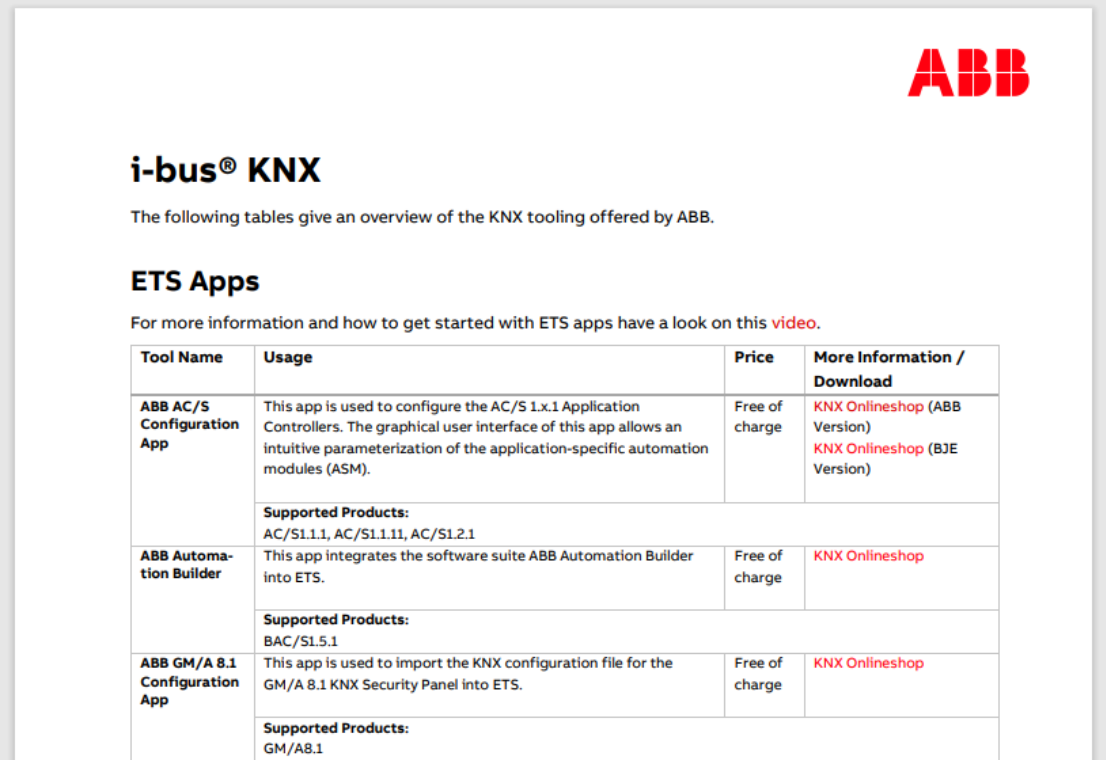
ABB i-bus® KNX Switch Actuators – ETS Application V1.1

Overview

Engineering Guide Tooling Overview

In the Tooling Overview are collected all Apps, tools and online services offered for the Building & Home Automation Solutions portfolio

- ETS Apps: (e.g. ABB Firmware update)
  used to install and configure a KNX system
  These apps just need to be downloaded from the ETS Shop, installed in the ETS
- Mobile Apps: (e.g. ControlTouch App)
  Applications mainly used on smartphones or tablets and some also on laptops. Used to configure or control devices
- Service Tools: (e.g. ABB i-bus® Tool)
  Support during planning, commissioning and service of the installations
- Configurators: (e.g. ABB-tacteo configurator)
  Possible to adapt the product functions or specifications to your individual needs



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i-bus® KNX

The following tables give an overview of the KNX tooling offered by ABB.

ETS Apps

For more information and how to get started with ETS apps have a look on this video.

Tool Name	Usage	Price	More Information / Download
ABB AC/S Configuration App	This app is used to configure the AC/S 1.x.1 Application Controllers. The graphical user interface of this app allows an intuitive parameterization of the application-specific automation modules (ASM).	Free of charge	KNX Onlineshop (ABB Version) KNX Onlineshop (BJE Version)
	Supported Products: AC/S1.1.1, AC/S1.1.11, AC/S1.2.1		
ABB Automation Builder	This app integrates the software suite ABB Automation Builder into ETS.	Free of charge	KNX Onlineshop
	Supported Products: BAC/S1.5.1		
ABB GM/A 8.1 Configuration App	This app is used to import the KNX configuration file for the GM/A 8.1 KNX Security Panel into ETS.	Free of charge	KNX Onlineshop
	Supported Products: GM/A8.1		

LINK Tooling Overview

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BCU key

BCU key to lock KNX devices

In the ETS (Overview/Projects) a BCU (Bus Coupler Unit) key can be set for a project

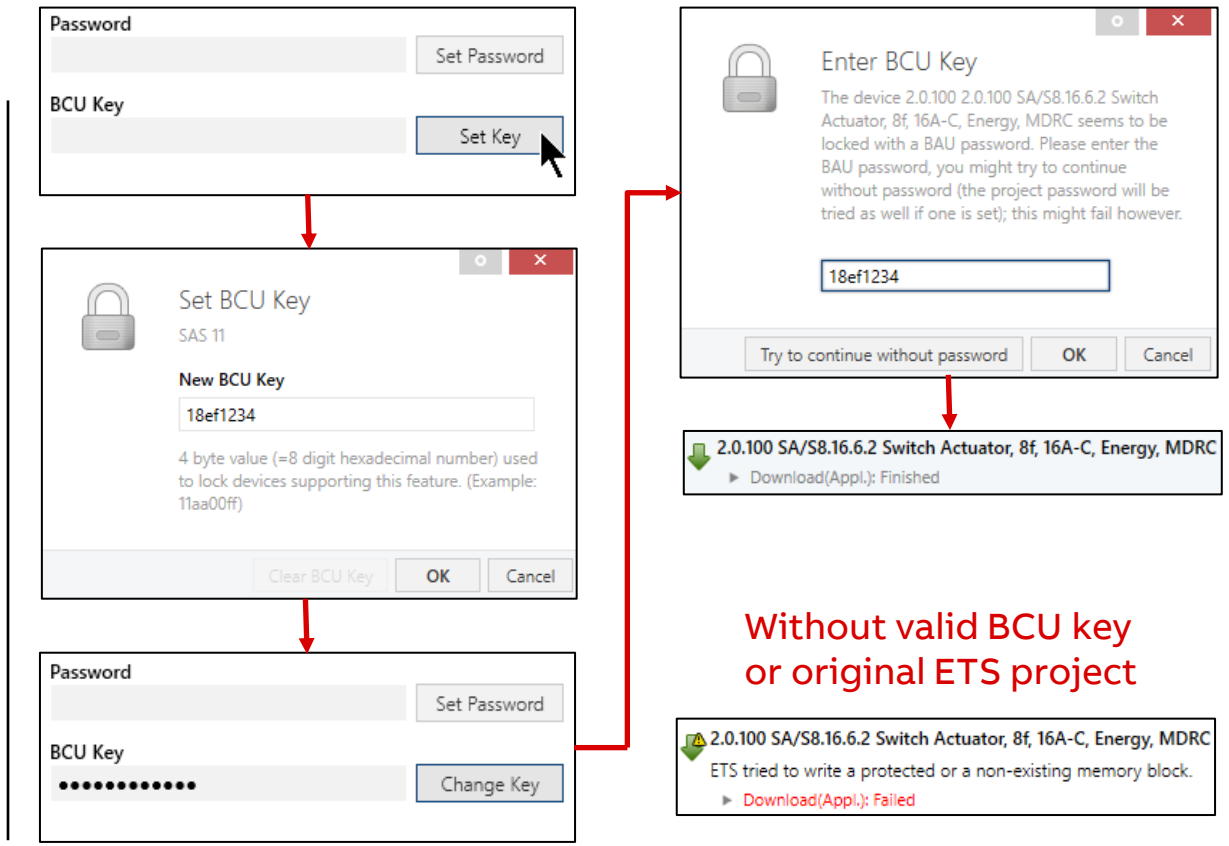
Without this key (4 byte hex number) it can be a problem to access in a project a device which supports this feature, no download of application could be feasible

Advantage: Any unauthorized (re)programming without key or original ETS project is not possible

Risk: In case of lost key or lost original ETS project the device can be used only with the actual programming and commissioning status, any changes are impossible

No other chance, except replacing with a new product!

Switch Actuators SA/S and SAH/S support BCU key!



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Questions ???

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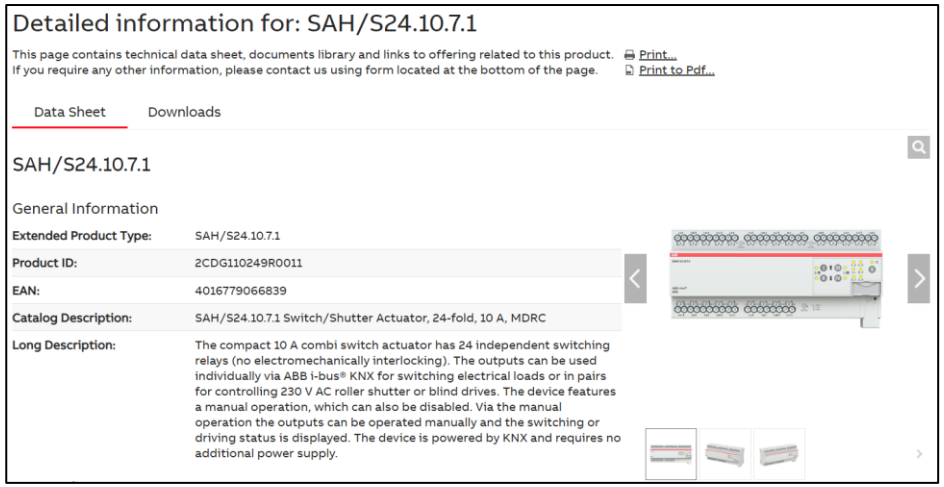
Webinar

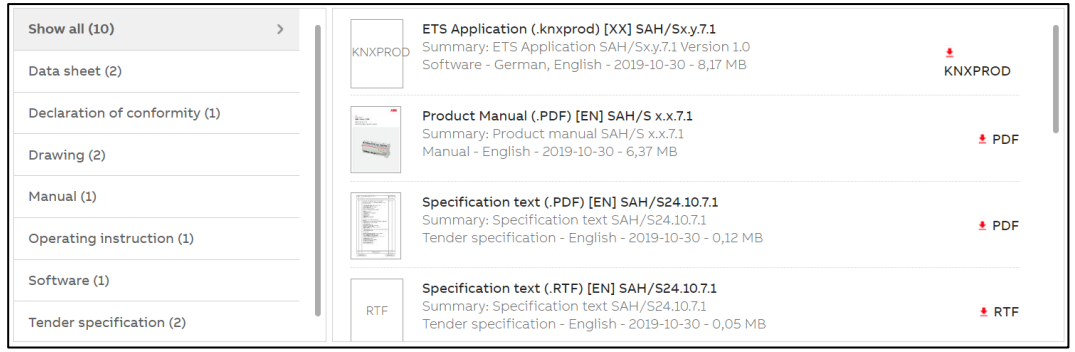
Homepage

www.abb.com/KNX

→ Products and Downloads
→ Outputs
→ Search Options, e.g. SAH/S

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





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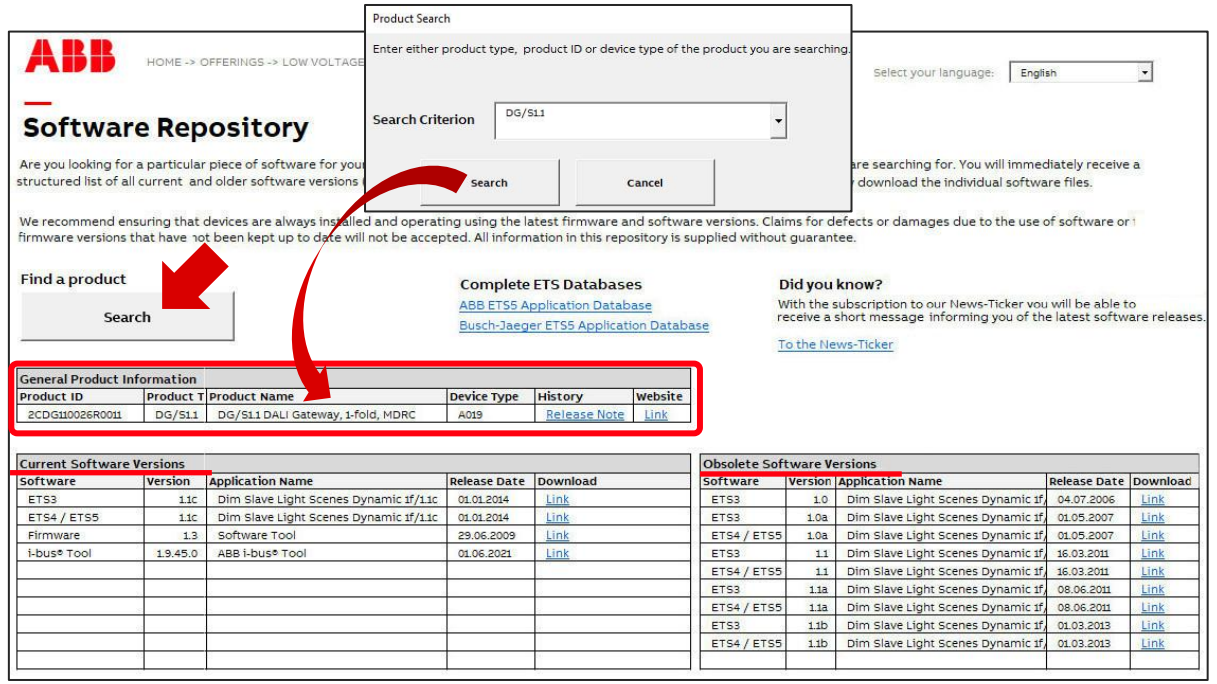
Software Repository

- Excel list in German and English
- Link to general product information
- Search for a KNX product and the corresponding software (firmware, ETS application) will be displayed
- Current firmware of Welcome IP and free@home devices
- A direct download of this software is possible via a link
- Historical ETS applications can also be downloaded (database for ETS App “Reconstruction Tool”)

- www.abb.com/KNX
  → Additional materials
  → Downloads for KNX
  → Software Repository



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Webinar

Training Material

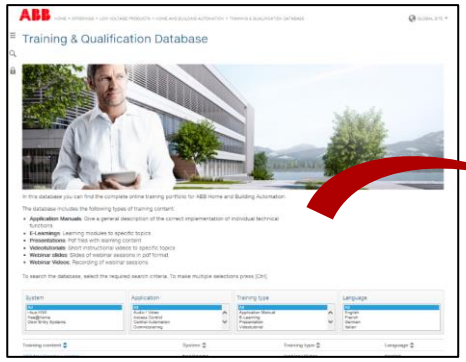
Training & Qualification Database

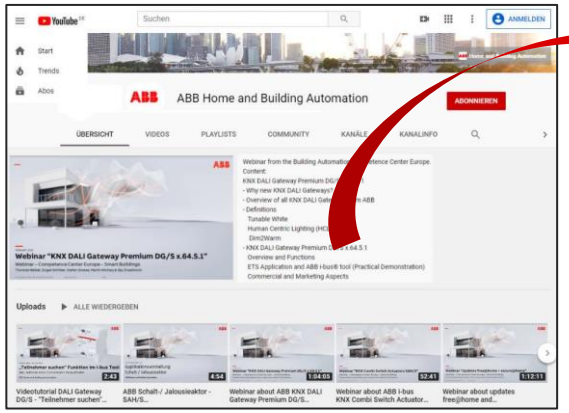
– The database contains extensive training content
  - Presentations
  - Video tutorials
  - Webinar slides and videos
  - and more …
  - https://go.abb/ba-training
  - ww.abb.com/knx (→ Services & Tools → Training and Qualification → Training Database)

YouTube

– Channel “ABB Home and Building Automation”
  - https://www.youtube.com/user/ABBibusKNX

Training and Qualification





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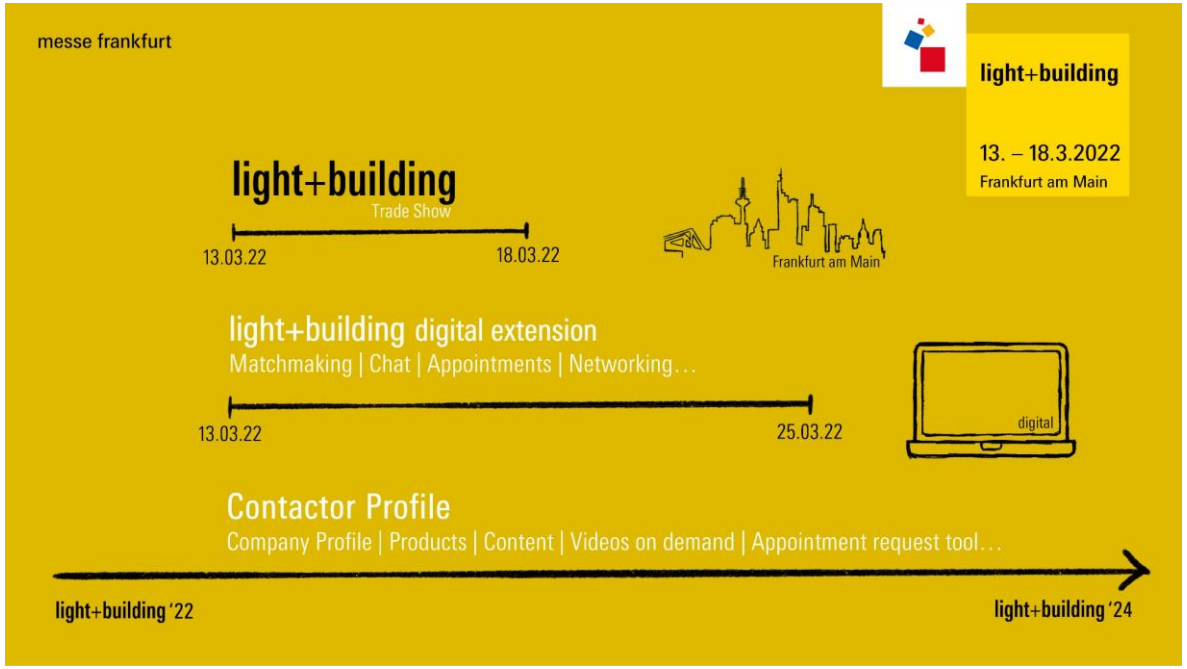
Webinar

Light + Building shall take place in March 2022

Onsite + digital: here we go

- At Light+Building the industry presents every two years the latest products for the fields of lighting, electrical engineering and home and building automation
- Light+Building opens in Frankfurt from 13th to 18th March 2022
- The new Light+Building digital additions functions will also be available at the same time and beyond
- We plan our participation in general as a hybrid event, so that customers can join remotely
- You will find ABB and BUSCH-JAEGER booth in the NEW hall 12.0



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