



17-01-2020

Smart Building Solutions for Cruise Ships

ABB i-bus® KNX and Wiring Accessories solutions for Cabin Automation

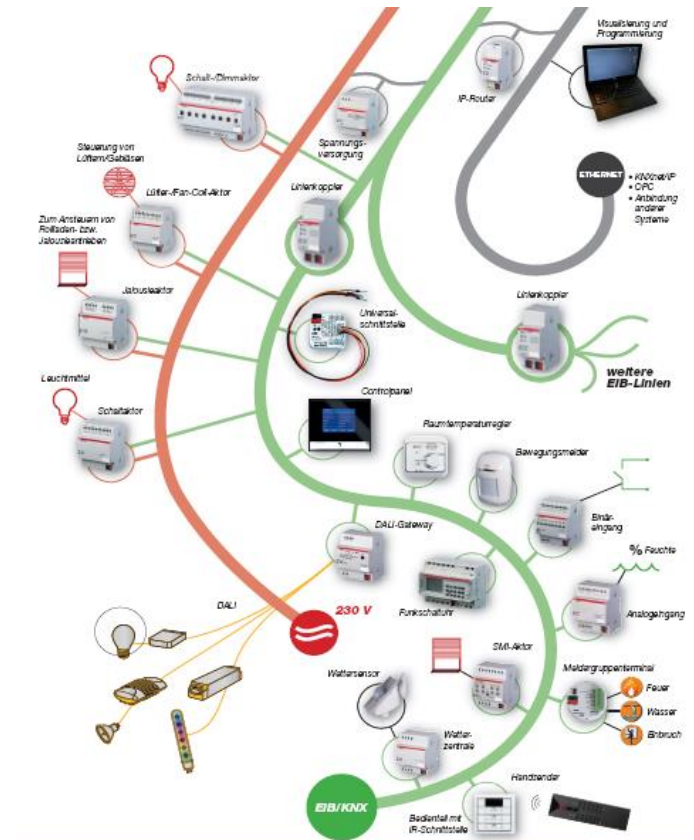
Roberto Vanetti, Smart Building Segment Marketing Manager, Marine, Rail, eMobility



KNX introduction

Overview

- KNX is a bus system for switch- and control-applications in residential and non residential buildings.
- KNX is the first open standard for home & building control.
- Fully compatible and interoperable.
- Truly open bus technology.
- Thousands of products.
- Several applications.
- Comfort—Security—Economy.



KNX introduction

KNX—Standards

CENELEC



- **EN 50090**—The only European Standard for Home and Building Electronic Systems (HBES) based on KNX is the first open standard for home & building control.

CEN



- **EN 13321-1**—The European Standard for Building Automation based on KNX fully compatible and interoperable.

ISO/IEC



- **ISO/IEC 14543-3**—The World's only Standard for Home Electronic Systems (HES) based on KNX.

KNX introduction

KNX—Standards

GB/Z



- **GB/Z 20965**—Chinese Standard for Home and Building Control based on KNX.

US-Standard



- **ANSI**

US-Standard



- **ASHRAE**

KNX introduction

KNX—Organisation

Mission

To develop and promote the **KNX** standard so that it is recognized as:

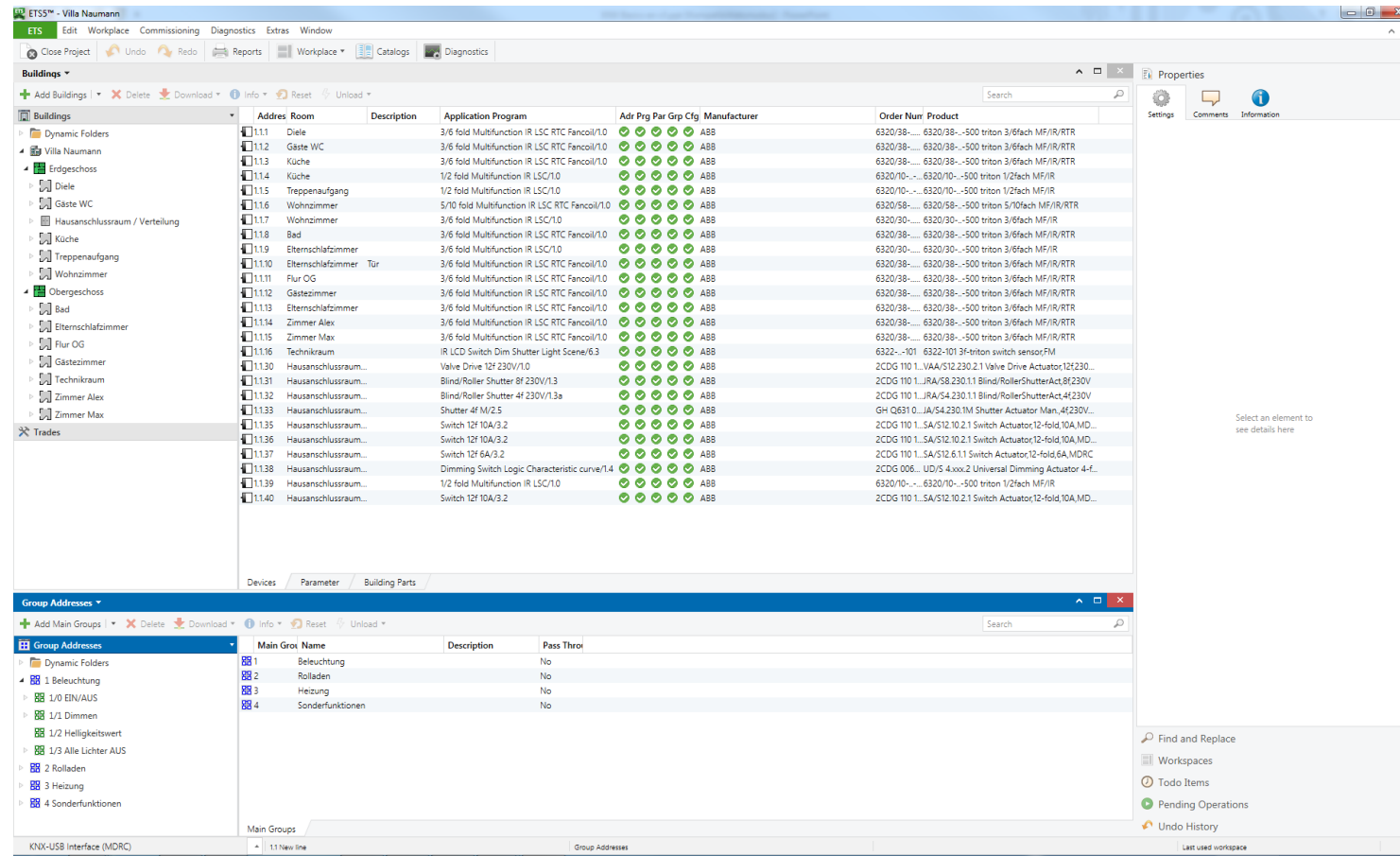
- **The worldwide STANDARD for home and building control.**
- For the control of applications in industrial, commercial and residential buildings worldwide.
- To ensure that the market recognizes **KNX Association**, its members and their products as the driving force worldwide to open the Market of smart homes and buildings and enhance the share of intelligent building infrastructure. **KNX Association** with its standard **KNX** is a generator of business opportunities.

www.knx.org



KNX introduction

Software ETS 5 design and commissioning of KNX installation



KNX introduction

ABB i-bus® KNX Applications

- Lighting Control/ Constant Light Control.
- Heating, Air-conditioning and Ventilation.
- Roller Shutter, Window and Blind Control.
- Building Surveillance and personal Protection.
- Visualisation, Display and Signaling.
- Central Automation.
- Remote Control/ Remote Access.
- Interfacing to other Systems.
- Energy-and Load management.
- ...

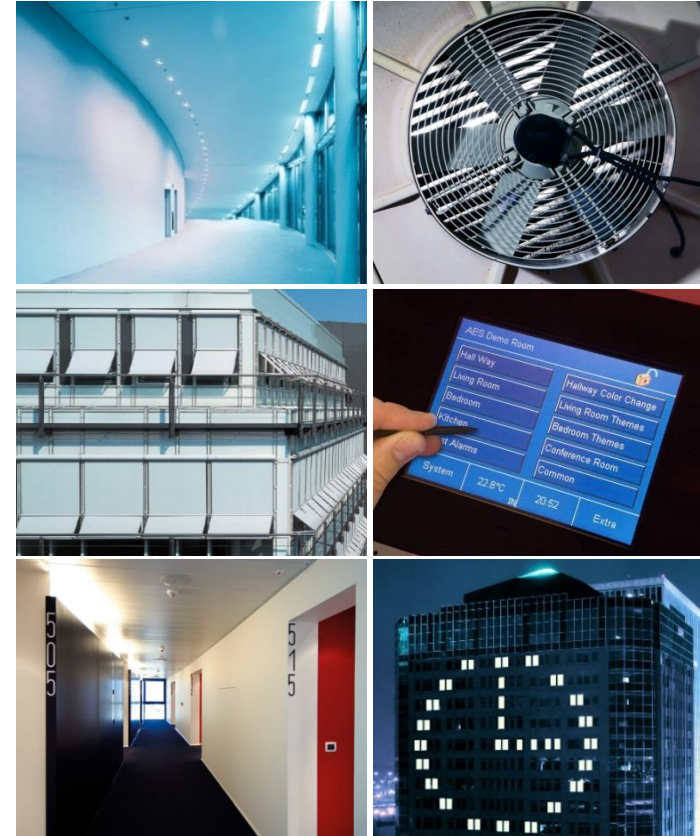


ABB i-bus® KNX

Range overview

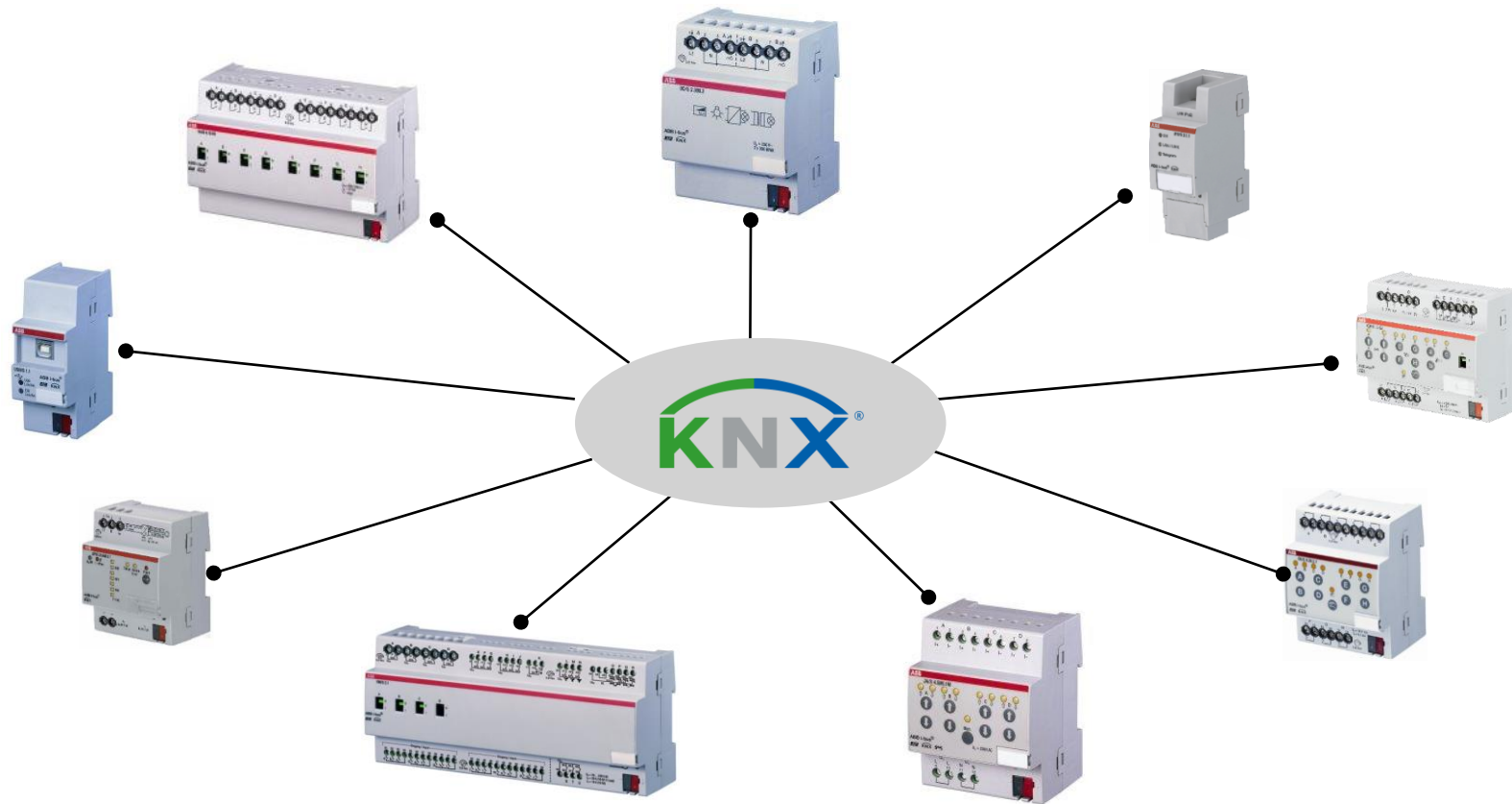


ABB i-bus® KNX

Range overview

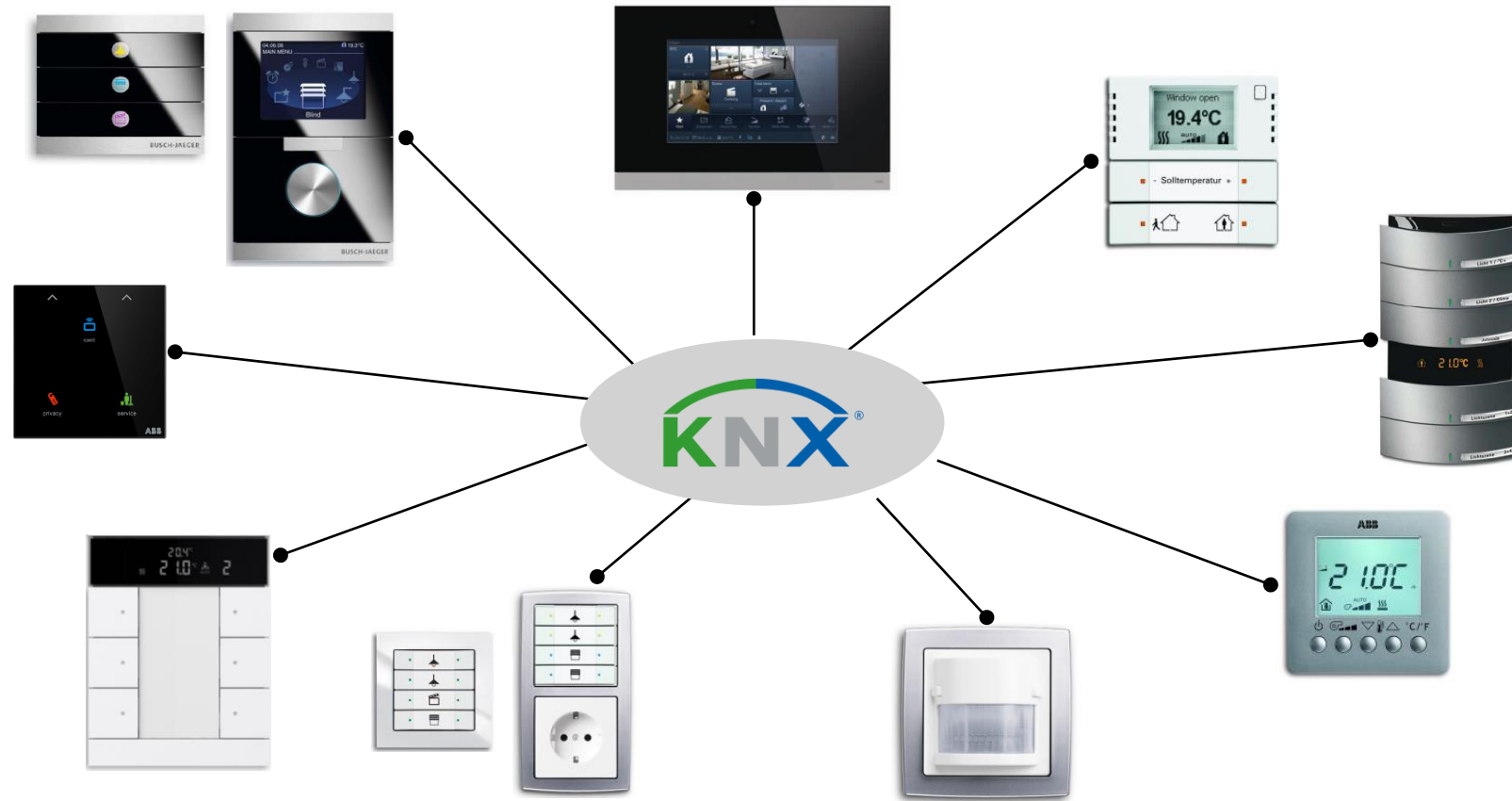


ABB i-bus® KNX Room automation

Solutions for every type of cabin

Crew cabins



Passenger cabins



ABB i-bus® KNX Room automation

Room Master RM/S x.1

Room solutions - Application and functions



- **Lighting** Controls the entire room lighting:
Switching, lightscenes, master commands
- **Climate** Temperature control specially adapted to each room:
Heating, ventilation and A/C
- **Shading** Controls shutters, roller blinds or curtains:
Light level and temperature set to guest's specific wishes or set to automatic mode
- **Service** Service before, during and after a guest used the room: Welcome scenarios, "do not disturb", "please make up room"
- **Safety** Safety at all times and in all situations:
Emergency signal and error message sent to reception and facility management

ABB i-bus® KNX Room automation

Room Master Premium RM/S 2.1

Compact solution for complete automation

- Direct connection with Conventional Wiring Accessories (CWA) through Input terminals without the need of additional Universal Interfaces saving space and wiring costs.
- As alternative to CWA option, full functionalities can be managed directly with KNX sensors through KNX line connection saving installation costs.
- Automation for Lighting, control Heating/Air conditioning, Shading control (shutters, blinds or curtains).
- Additional function extensions are possible at any time by adding KNX devices, e.g. modules for dimming via ABB i-bus® KNX.

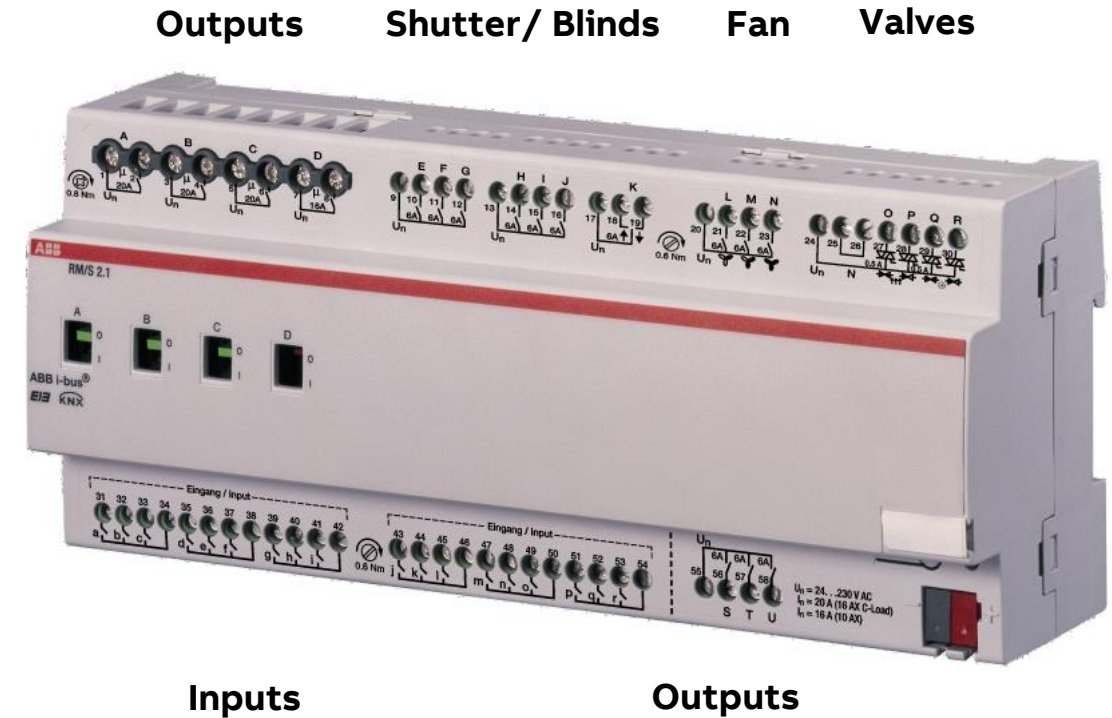


ABB i-bus® KNX Room automation

Room Master Premium RM/S 2.1

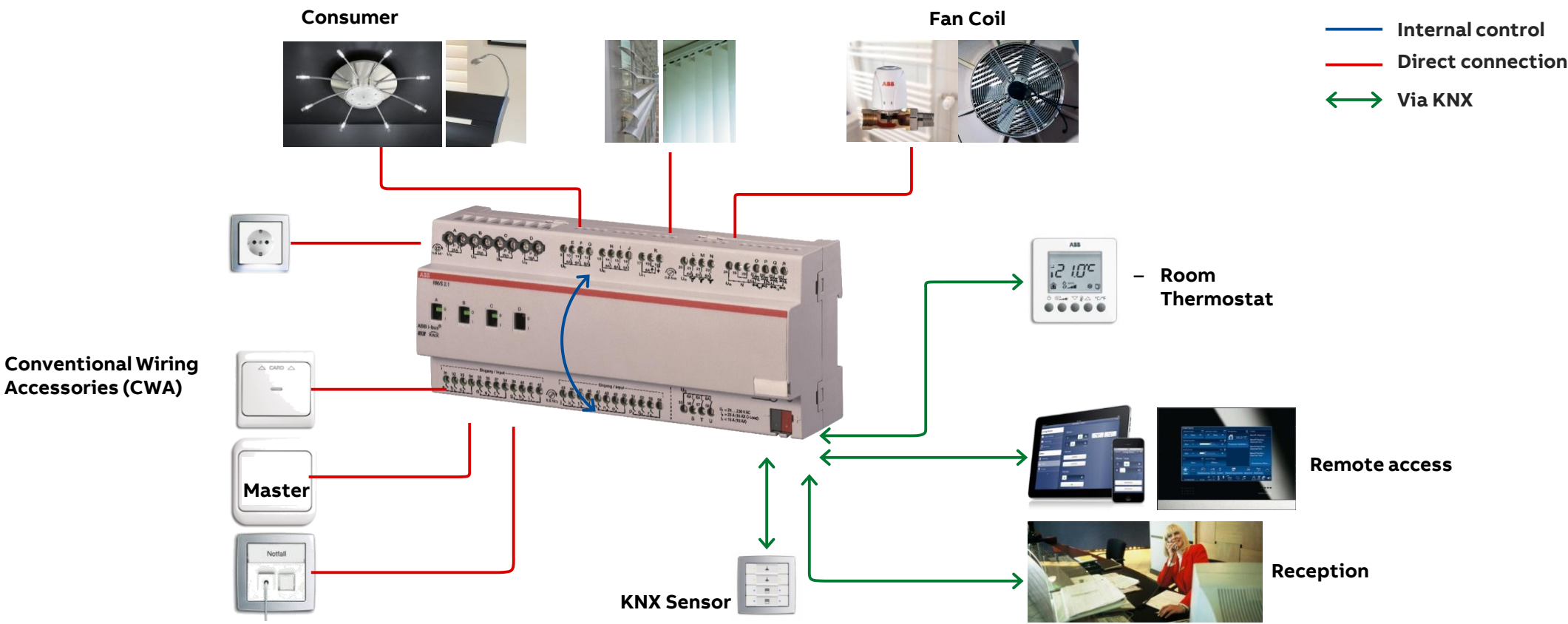
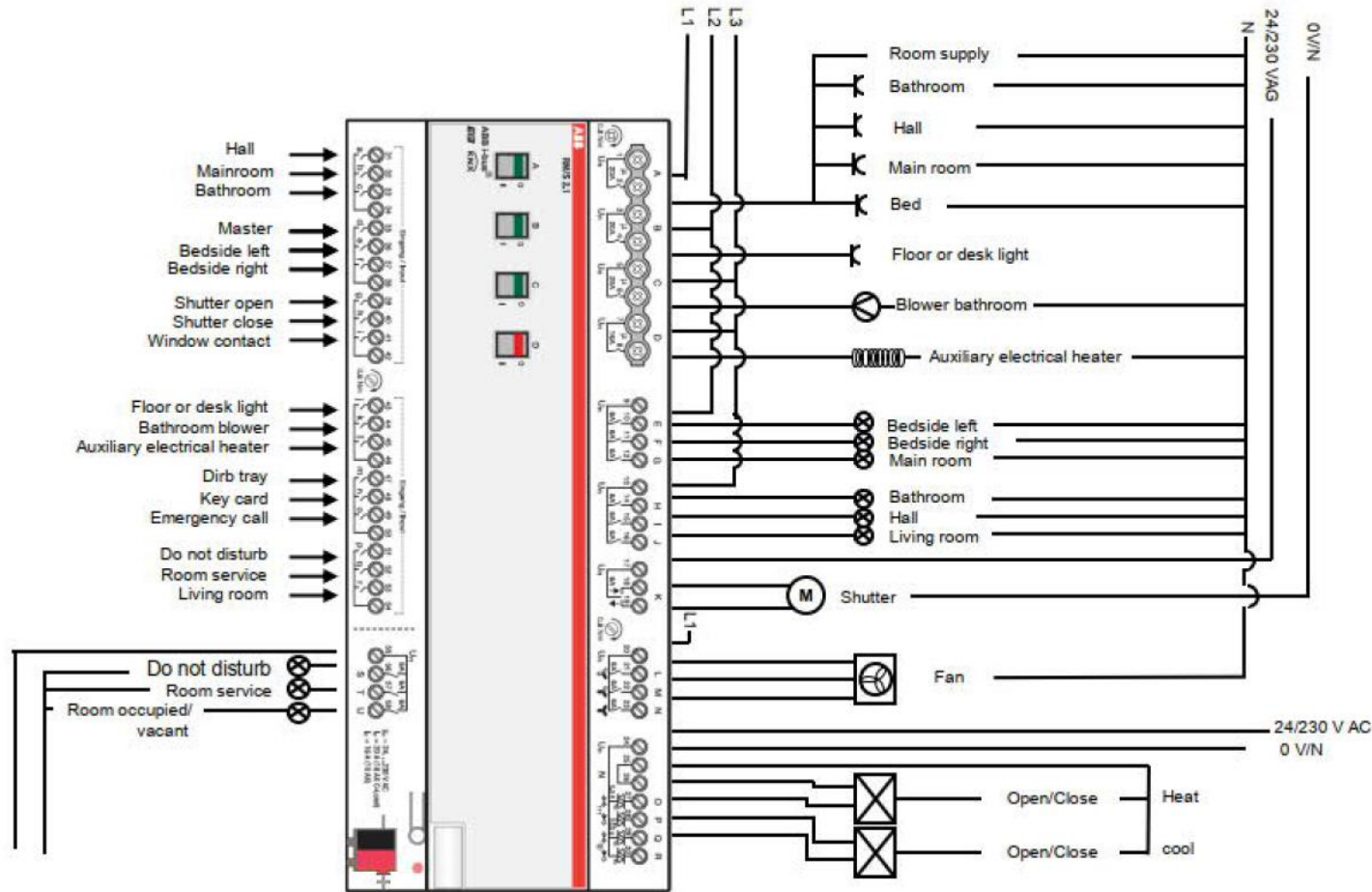


ABB i-bus® KNX Room automation

Room Master Premium RM/S 2.1



Conventional Wiring Accessories (CWA)

Wide range of different standards and designs, some example

Italian standard – Chiara Xite



Natural



Iron Black



Champagne Gold



Icy



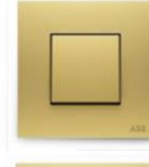
Brushed Inox



Copper

An essential range with all the lightness of aluminium.

British standard - Millenium



An element of sophistication, engineered to offer maximum comfort.

German standard



Busch-dynasty®



future® linear



carat®



pure stainless steel



Busch-axcent®



solo®

Different style to satisfy every need and every environment.

Cabin with CWA and ABB i-bus® KNX

Example

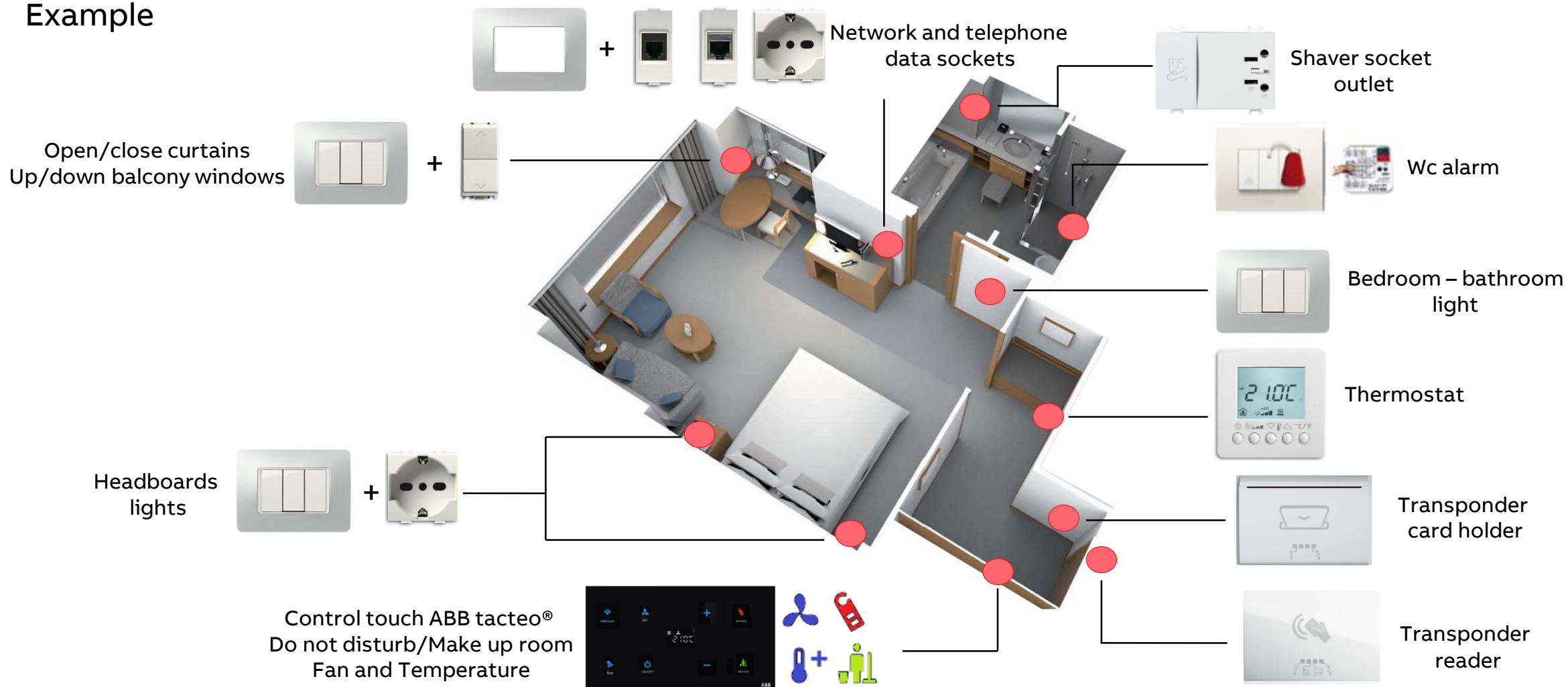


ABB tacteo® KNX

Introduction

Features

- New frameless capacitive sensor for KNX.
- Slim and modern design.
- Devices are set max. 9mm on the wall (exception: cardholder 12mm).
- Proximity function and feedback signal.
- Devices can optionally be equipped with removal protection.
- ABB color concept.
- Portfolio includes push button sensors, room temperature controller, card holder, card reader and motion sensor.
- Available in white and black.
- Real glass material.



ABB tacteo® KNX

Introduction

Features

- Integrated KNX bus coupler.
- Commissioning/parametrization from ETS4 onwards.
- ABB-tacteo room temperature controllers must be additionally supplied via a separate 24 V DC power supply.
- Standard and customized components available.
- Customer can create individual devices via online configuration tool.
- No extra cost by configuration.
- For global markets:
 - VDE / British Standard / Chinese / Swiss type wallboxes / Italian standard wallboxes / NEMA type wallboxes.

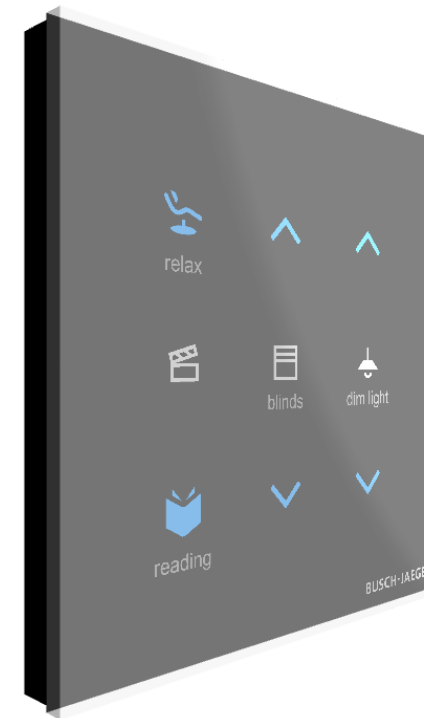



ABB tacteo® KNX

Introduction

Configuration

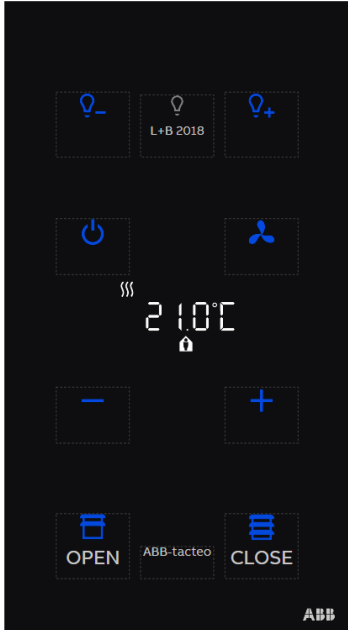
- Customers can choose between standard devices and products with individual labeling.
 - Setting via Web-Configurator (<http://new.abb.com/buildings/tacteo>).
 - Adjustable are e.g. „Control Icons“, „Functional Icons“ and text.
 - After configuration a unique Design-ID is generated for ordering.
 - For hotels:
 - Compatible with ABB's MiniMAC - Access control management and configuration software.
- 
- Card holder can work together with other systems based on MIFARE technology (operation of internal relay contact).

ABB

CONFIGURATION LANGUAGE

Model Appearance & Function Overview

Your selection



Sensor type
Room temperature controller

Assignment
RTC + 4gang

Format
157 x 88 mm

with logo of manufacturer

Colour
Surface Glass black (-825)
Housing Black

Type of installation
Germany (DE)
VDE

Hide raster Preview Continue

ABB tacteo® KNX

Range overview



1-fold



2-fold



4-fold



4-fold with RTC



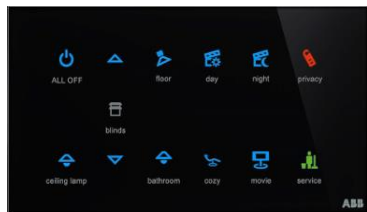
WatchDog



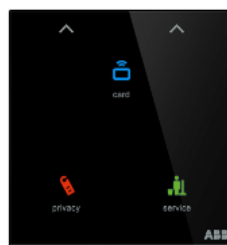
6-fold



RTC



12-fold



Card holder
(Hotel)

Card reader
(Hotel)

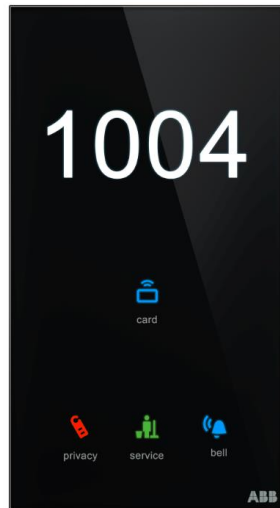


ABB tacteo® KNX

Cabin automation – Control system devices

Room number + Card reader Tacteo

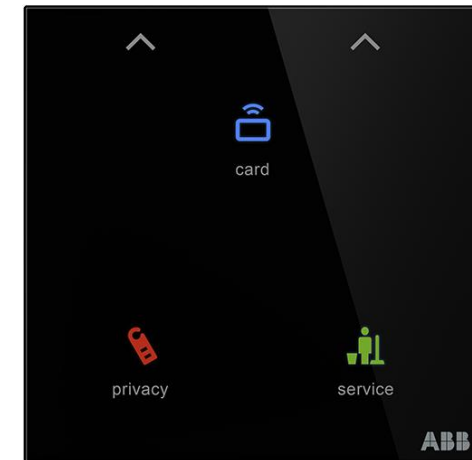
- KNX certified device.
- Room number indication (controlled by KNX).
- Transponder card reader, for card validation.
- Room status: «Do not disturb/Make up room».



TSM/U.2.1 – CG

Transponder card holder

- Slot for card insertion.
- Card validation.
- Button to signal room status: «Do not disturb/Make up room».



TA/U3.2.1 - CG

ABB tacteo® KNX

Cabin automation – Control system devices

Thermostat

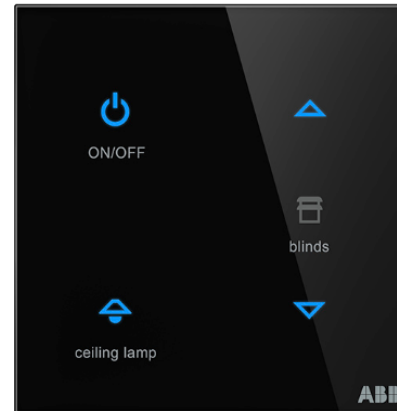
- To control and regulate temperature.



TR/U.1.1 – CG

General Control touch Tacteo

- Up to 12 gang.
- Every kind of configuration based on need, to create different scenarios and to have a lot of functionalities.



TB/U4.4.1-CG

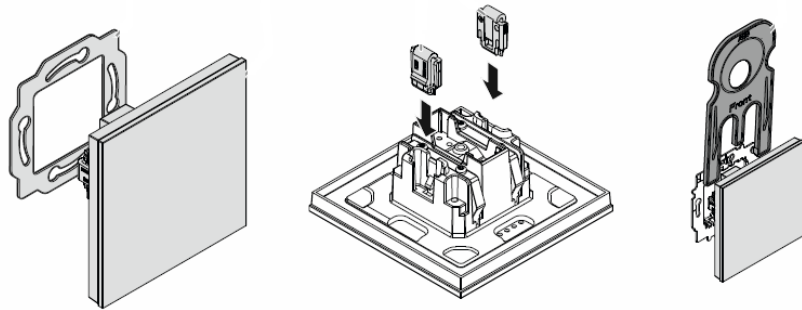


TB/U12.8.1-CG

ABB tacteo® KNX

Cabin automation – Control system devices

Dimensional drawings and installation TB/U .. Control elements



Country-specific support rings are for example:

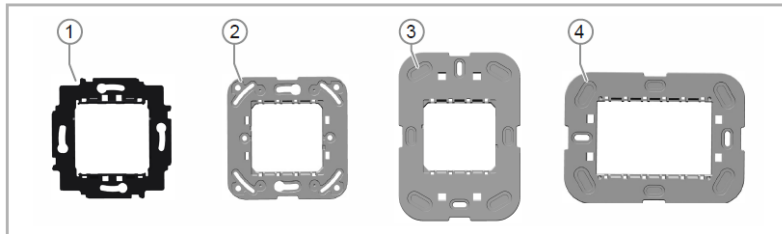
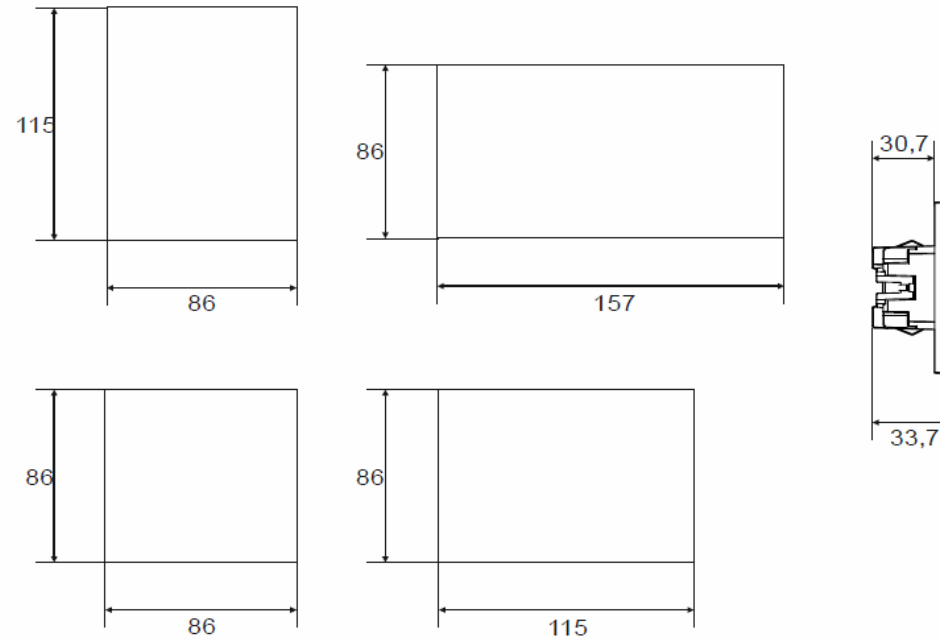


Fig. 3: Country-specific support rings

- [1] VDE Germany
- [2] Switzerland / British standard (BS)
(The support ring for Switzerland is supplied without earth terminal)
- [3] NEMA
- [4] Italy

Compact depth, ideal for cruise ship cabin thin walls.



Cabin with ABB tacteo® KNX

Example

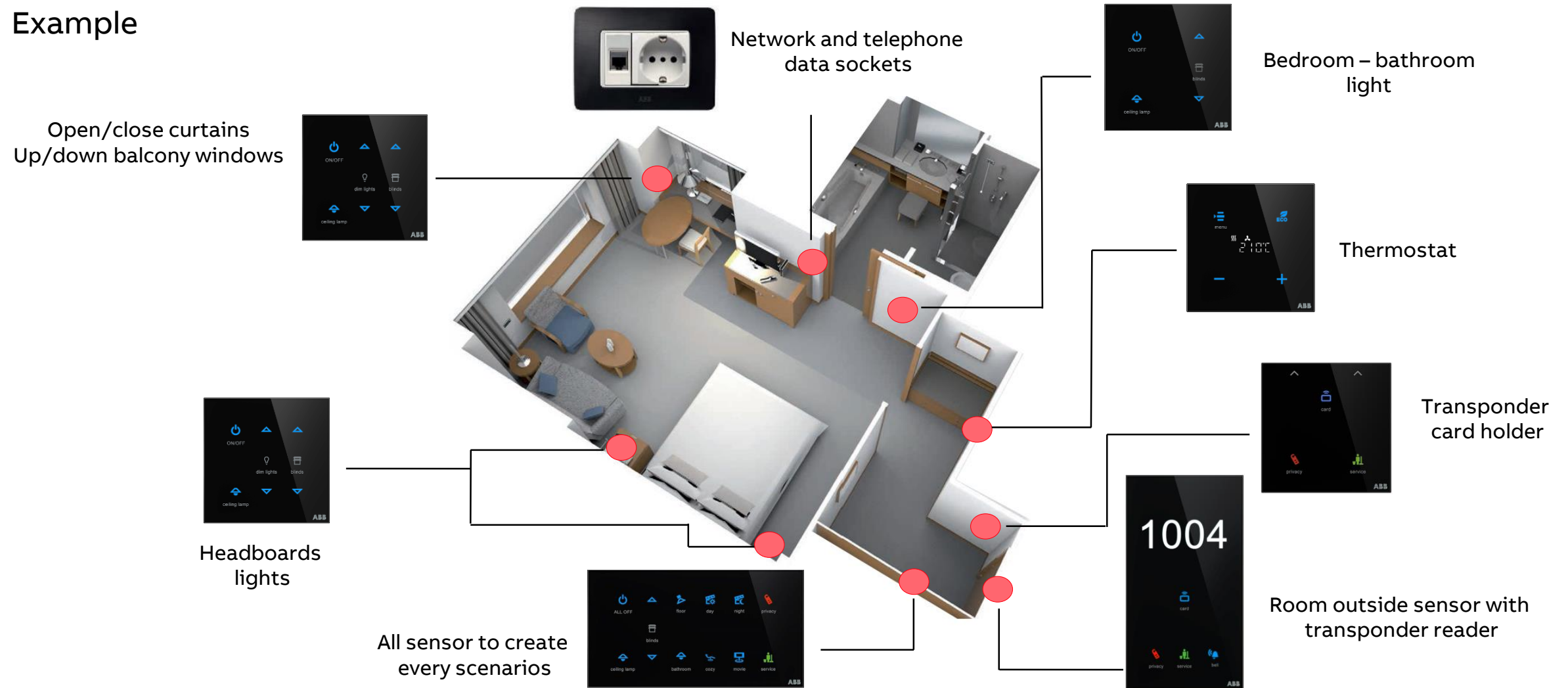
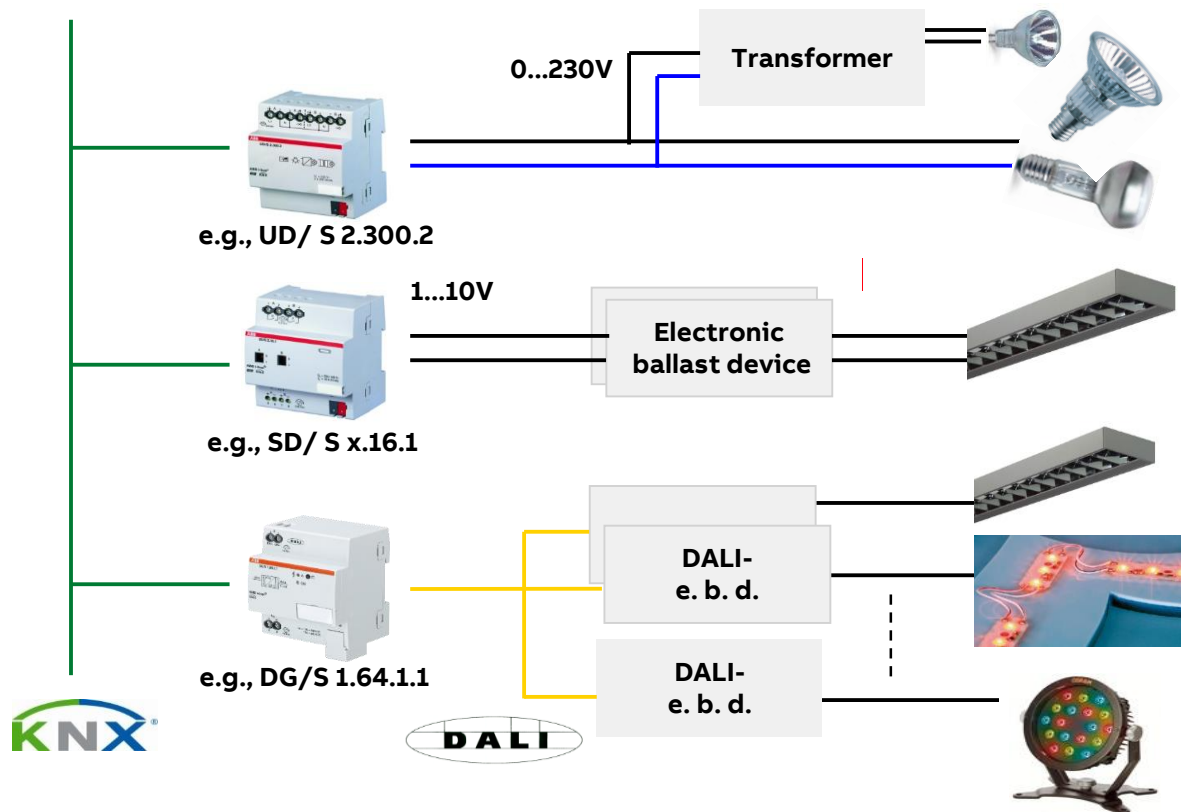


ABB i-bus® KNX dimming systems

Range overview



- Low-voltage halogen lamps which are powered by conventional or electronic transformers.
- Halogen lamps 230 V.
- Incandescent lamps.
- Dimmable LED's.
- Fluorescent lighting.
- Electronic ballast device.
- Transformer.
- Dim actuator.
- Switch actuator.
- LED-converter.

ABB i-bus® KNX dimming systems

KNX LED-Dimmer

Features

- Update of ABB's multi channel dimmer especially for LED load.
- Reliable dimming of LED lamps, 230V and low-voltage halogen lamps, as well as conventional incandescent lamps and dimmable energy saving lamps.
- Optimized for Retrofit LED (no flickering, no glowing, constant dimming behavior).
- Minimum load only 2W.
- One separate neutral per channel → connection of circuits with independent N now possible.
- Automatic load detection (deselectable).
- Easy manual operation.
- ABB i-bus® tool support.



ABB i-bus® KNX dimming systems

KNX LED-Dimmer

Features

- 4 channels (UD/S 4.210.2.1) and 6 channels (UD/S 6.210.2.1).
- Voltage: 110 – 230 V.
- Frequency: 50/60 Hz.
- Load per channel with trailing edge phase control (also LED).
 - 210 W, with channel bridging up 1200/800 W (6/4 channels).
- Load per channel with leading edge phase control (also LED).
 - 80 W, with channel bridging up 240/200 W (6/4 channels).



ABB i-bus® KNX dimming systems

KNX DALI Gateway DG/S1.64.1.1

Features

- For controlling DALI devices via the ABB i-bus®.
- One DALI output for up to 64 DALI slaves.
- DALI power supply is integrated.
- Control and status feedback is carried out via KNX per DALI slave (64), with lighting groups (16), together in broadcast or per scenes (16).
- Extensive fault and error messages are available.
- For diagnostic use and individual change of the DALI address or group assignment a separate Software-Tool is available.



Why ABB i-bus® KNX

Cruise ship cabins application

Arguments

- Bus cable with two wires instead of numerous control wires:
 - Reduction of wires and cables, costs of installation, engineering and fire load.
- Integration of many applications within one System:
 - Reduction of costs of installation, multiple-shift usage of components, comprehensive functionality.
- Every time extendable and reprogrammable:
 - Flexible from the beginning to the end of the project and during the phase of utilization, e.g., in case of change of the room layout, new applications ...
- Reduction of running costs with control of loads if required (e.g., control of illumination and HVAC via presence detector, central—and group controlled, time controlled switching ...):
 - Reduction of costs, Energy efficiency.



Why ABB i-bus® KNX

Cruise ship cabins application

Arguments

- Central control and displaying (Visualization):
 - Reduction of running costs and discharge of the staff.
- Remote access via WLAN or internet with smart phone or Tablet-PC:
 - State of the art, comfort, safety.
- Supervision:
 - Enhancement of safety for the passengers and crew.
- Integration of more applications in future.
- Further Functions (e.g., Light scenes, Positioning of sun protection):
 - Advance of comfort.



ABB