Smart Building Solutions for Cruise Ships

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

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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.
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<td>- GB/Z 20965—Chinese Standard for Home and Building Control based on KNX.</td>
<td>- ANSI</td>
<td>- ASHRAE</td>
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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

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**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

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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

Conventional Wiring Accessories (CWA)

Consumer

Fan Coil

Internal control
Direct connection
Via KNX

Remote access
Reception

Master

KNX Sensor
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
- Icy
- Iron Black
- Brushed Inox
- Champagne Gold
- 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®
- Busch-axcent®
- pure stainless steel
- solo®

Different style to satisfy every need and every environment.
Cabin with CWA and ABB i-bus® KNX

Example

- Open/close curtains
- Up/down balcony windows
- Headboards lights
- Control touch ABB tacteo
- Do not disturb/Make up room
- Fan and Temperature
- Network and telephone data sockets
- Shaver socket outlet
- Bedroom – bathroom light
- Thermostat
- Transponder card holder
- Transponder reader
- Wc alarm
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 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.
- 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 tacteo® KNX

Range overview
### 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».

#### Transponder card holder

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

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TSM/U.2.1 – CG

TA/U3.2.1 - CG
**ABB tacteo® KNX**

Cabin automation – Control system devices

**Thermostat**
- To control and regulate temperature.

**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.
ABB tacteo® KNX
Cabin automation – Control system devices

Dimensional drawings and installation TB/U .. Control elements

Country-specific support rings are for example:

Compact depth, ideal for cruise ship cabin thin walls.
Cabin with ABB tacteo® KNX

Example

Open/close curtains
Up/down balcony windows

Headboards
lights

All sensor to create
every scenarios

Network and telephone
data sockets

Bedroom – bathroom
light

Thermostat

Transponder
card holder

Room outside sensor with
transponder reader
- 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.
**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).
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.