ABB STOTZ-KONTAKT GmbH
ABB i-bus® KNX
Webinar “Room Automation with KNX”
Webinar “Room Automation with KNX”
Webinar “Room Automation with KNX”

Trends in building installation

- Increasing number of applications per room
- Increasing functionality in the applications
- Decentralized installation of devices within the room
- Less wiring such reduction of fire loads
- Less time and effort for assembly & mounting
- Cost optimized solutions

→ Dedicated solution for specific rooms / units
Webinar “Room Automation with KNX”

How about:

- ... one KNX device per room to control **all** functions?
  - Lighting switching on/off and dimming
  - Light control
  - Controlling Shutters and Blinds
  - Heating and Cooling / FanCoil-Units
  - Security
  - ...
Webinar “Room Automation with KNX”

Projects

- Office Buildings, Schools, Hospitals, Hotels, Apartments, …
- Buildings with the same type of rooms and functions many times
- Solution for one room or unit (mock up room) → copy and paste
Webinar “Room Automation with KNX”
Room Controller and Room Master

2 Solutions for Room Automation

- **Room Controller RC/A**
  - The Room Controller consists of a basic device in which up to 4 or 8 modules for different functions can be plugged-in
  - The device with a height of 50 mm is ideal for installation in floor compartments or false ceilings

- **Room Master RM/S**
  - The Room Master is the complete solution for the demands of electrical installations in hotel rooms and apartments
Webinar “Room Automation with KNX”
Room Controller RC/A

The “one device per room“- principle:
- A single Room Controller controls all the room functions

Operation

Security & Surveillance

Lighting:
- Switching on/off and dimming

Constant lighting control

Controlling heating & cooling devices
- FanCoil

Controlling shutters & blinds

Lighting:
- Switching on/off and dimming

Constant lighting control
Webinar “Room Automation with KNX”
Room Controller RC/A – Overview

Basis device for
- 8 Modules RC/A 8.2
- 4 Modules RC/A 4.2

Modules:
- Binary Input Module, 4fold, 230 V AC/DC, BE/M 4.230.1
- Binary Input Module, 4fold, 24 V AC/DC, BE/M 4.24.1
- Binary Input Module, 4fold, contact scanning, BE/M 4.12.1
- Switch Actuator Module, 2fold, 6 AX, SA/M 2.6.1
- Switch Actuator Module, 2fold, 16 A potential-free, SA/M 2.16.1
- Shutter Actuator Module, 2fold, 230 V AC, JA/M 2.230.1
- Shutter Actuator Module, 2fold, 24 V DC, JA/M 2.24.1
- Switch/Dim Actuator Module, 2fold, 6 AX, SD/M 2.6.2
- Light Controller Module, 1fold, 6 AX, LR/M 1.6.2
- Univ. Dim Actuator Module, 1fold, 300 VA, UD/M 1.300.1
- Electr. Switch Actuator Module, 2fold, 230 V, ES/M 2.230.1
- Electr. Switch Actuator Module, 2fold, 24 V, ES/M 2.24.1
Webinar “Room Automation with KNX”
Room Controller RC/A 8.2

- Power Input:
  max. 3x230 V and 16 A
- One KNX device independent the number of modules
Webinar “Room Automation with KNX”
Room Controller RC/A 4.2

- Surface mounted device for up to four pluggable modules
- Power Input: max. 1x230 V (L, N, PE) and 16 A
Webinar “Room Automation with KNX”
Room Controller RC/A 8.2

- ABB i-bus® KNX
- Additional input voltage 24 V DC
- Manual control unit and display
- Programming button and LED
- Power supply for basic unit and feed for modules
Webinar “Room Automation with KNX”
Room Controller RC/A 8.2
Webinar “Room Automation with KNX”
Room Controller RC/A 8.2
Webinar “Room Automation with KNX”
Room Controller RC/A 8.2

[Image of a software interface for controlling room automation with KNX, showing a configuration for a Universal Dim Actuator 1-fold]

- **General Module slots**: M1: SA/M 2.6.1: Switch Actuator 2-fold
- **Module configuration**: M2: JA/M 2.230.1: Blind Actuator 2-fold AC
- **Module configuration**: M3: SD/M 2.6.2: Switch Dim Actuator 2-fold
- **Module configuration**: M4: LR/N 1.6.2: Light Controller 1-fold
- **Module configuration**: M5: UD/M 1.300.1: Universal Dim Actuator 1-fold
- **Module configuration**: M6: not used
- **Module configuration**: M7: not used
- **Module configuration**: M8: not used

- **Communications objects**:
  - **Object 0**: Switch
  - **Object 2**: Output Relative dimming
  - **Object 3**: Output Brightness value
  - **Object 5**: Output Forced operation
  - **Object 6**: Output Error signal
  - **Object 7**: Output Error code
  - **Object 8**: Output Call preset 1 and 2
  - **Object 10**: Output Call preset 3 and 4
  - **Object 12**: Output 8-bit scene

- **Function settings**:
  - **Enable function “presets”**: yes
  - **Enable characteristic adjustment**: yes
  - **Enable function “forced operation”**: yes
  - **Brightness on object value = 3**: 100% (255)
  - **Automatic load detection is active**: yes
  - **Filter against spike control signals is active**: yes
  - **Select extra function**: scene (8 bit)
Webinar “Room Automation with KNX”
Room Controller RC/A 8.2
Webinar “Room Automation with KNX”
Room Controller RC/A 8.2
Webinar “Room Automation with KNX”
Room Controller RC/A

The Modules

Connection terminals (plug in screw type terminals)

Power input

Contacting of the control lines
Webinar “Room Automation with KNX”
Room Controller RC/A

Quick installation
1. Mounting the base device
2. Plug in of the modules
3. Connection of the end devices
4. Applying of voltage
5. Testing
   (without bus voltage or programming)
Webinar “Room Automation with KNX”
Room Controller RC/A

Installing the modules

1. Disconnect the Room Controller, Basis Device from the supply
2. Remove the protective cover from the control line contact surfaces
3. Insert the module
4. Snap into place
   - Automatic connection to the mains supply
   - Every module can be inserted into any slot
5. Unclip the module with a screwdriver and release it
Webinar “Room Automation with KNX”
Room Controller RC/A

Top Arguments for the Room Controller

- Mounting and test on location
- Simple manual operation without prior programming
- Flexibility: Functions can easily be changed or extended (Module concept)
- Quick planning and installation, especially for projects with similar room functions
- Pluggable installation
- Own housing with protection IP 54
- Conventional push buttons applicable
Webinar “Room Automation with KNX”
Room Controller RC/A

Top Arguments for the Room Controller
- Single device per room / unit, such less KNX devices
- Ideal size for installation in the false ceiling or underfloor
- Structured cabling and shorter cable routes reduce fire load
- Power supply for connected loads
- Control of Fan Coil Units possible
- Also as a stand alone solution usable
2 Solutions for Room Automation

- Room Controller RC/A
  - The Room Controller consists of a basic device in which up to 4 or 8 modules for different functions can be plugged-in
  - The device with a height of 50 mm is ideal for installation in floor compartments or false ceilings

- Room Master RM/S
  - The Room Master is the complete solution for the demands of electrical installations in hotel rooms and apartments
Webinar “Room Automation with KNX”
Room Master – Overview

Commands
- internal control
- direct connection
- via KNX

Inputs
Master

Consumer
Fan Coil

Remote access
Room Thermostat

Reception

KNX Sensor
Room Solutions – Application and Functions

- **Lighting**: Controls the entire room lighting, switching, lightscenics, 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 has 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 messages sent to reception and facility management.
Webinar “Room Automation with KNX”
Room Master RM/S

Functions in the Room

- Mains Supply
  … Socket outlets, any electrical Load

- Lighting Control
  … Master Switch next to the Bed

- HVAC
  … Radiators, Fan-Coil Units

- Shutter and Blinds
  … Curtains

- Energy
  … Switching off of Loads

- Comfort
  … Hotel Room: „Please don‘t disturb“

- Security
  … Emergency Call in the Bathroom
Webinar “Room Automation with KNX”
Room Master Premium RM/S 2.1
Webinar “Room Automation with KNX”
Room Master Premium RM/S 2.1
Webinar “Room Automation with KNX”
Room Master Premium RM/S 2.1

- **Row 1:**
  - 1 - 12 Room Master

- **Row 2:**
  - 1 - 4 RCD
  - 5 (6A) Main Supply (Bell Transformer)
  - 6 (16A) Socket Outlet Circuit
  - 7 (16A) Socket Outlet Circuit
  - 8 (10A) Electrical. Heater / Auxiliary Contact
  - 9 (10A) Lighting Circuit + Shutter
  - 10 (16A) Room supply
  - 11 (6A) Fan Coil (HVAC)
  - 12 (16A) Blower bathroom

- **Row 3:**
  - 1 - 3 Main Switch 16A
  - 4 - 5 Bell Transform. (TS24/8-12-24)
  - 6 - 12 Dimmer, Audio/Video, etc.
Webinar “Room Automation with KNX”
Room Master Premium RM/S 2.1

Connection Diagram
Webinar “Room Automation with KNX”
Room Master Premium RM/S 2.1

Connection Diagram: Outputs
Webinar “Room Automation with KNX”
Room Master Premium RM/S 2.1

Connection Diagram: Inputs
Webinar “Room Automation with KNX”
Room Master Premium RM/S 2.1

Overview

- 12 Module Width, MDRC
- 18 Inputs and 21 Outputs
- No Auxiliary Voltage necessary
- Current consumption max. 24 mA (like 2 device)
- One Application Program
- Preparameterised Functions
- Room Solution, one Device for all Functions
- Use any conventional Push Button or KNX-Device for Operation
Webinar “Room Automation with KNX”
Room Master Basic RM/S 1.1

Outputs  Fan  Valves

Inputs
Webinar “Room Automation with KNX”
Room Master Basic RM/S 1.1

Connection Diagram: Outputs
Webinar “Room Automation with KNX”
Room Master Basic RM/S 1.1

Connection Diagram: Inputs
Webinar “Room Automation with KNX”
Room Master RM/S 3.1

Features
- 4 x switching outputs 20 AX
- 4 x shutter/blind outputs 6 A
- 12 x binary inputs contact scanning

Application program:
- Basis „Room Masters, Premium“
- Full functionality
- Internal links possible (input to output)
- Room scenarios

Application area
- Hotels, pensions
- Retirement homes
- Apartments ....
Room Automation
The new Room Master RM/S 3.1
Webinar “Room Automation with KNX”
The new Room Master RM/S 4.1

Features
- 8 x switching outputs 6 A
- 8 x binary inputs contact scanning

Application program:
- Basis „Room Masters, Premium“
- Full functionality
- Internal links possible (input to output)
- Room scenarios
Webinar “Room Automation with KNX”
Room Master RM/S 4.1
Webinar “Room Automation with KNX”
Room Master RM/S 3.1 and RM/S 4.1

Overview inputs

- Switching
  - 3 communication objects for sending adjustable
- Switch/Dim
  - Dimming of light
- Shutter/Blinds
  - Operation of shutter and blinds
- Value/forced operation
  - Sending of any values
Webinar “Room Automation with KNX”
Room Master RM/S 3.1 and RM/S 4.1

**ETS Parameter – input**

<table>
<thead>
<tr>
<th>General</th>
<th>Device: RM/S 3.1 Room Master, MDRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable inputs a...f</td>
<td>Input a (binary input, contact scanning)</td>
</tr>
<tr>
<td>Enable inputs g...l</td>
<td>Disable</td>
</tr>
<tr>
<td>Enable outputs A...D</td>
<td>Description (40 characters)</td>
</tr>
<tr>
<td>Enable outputs E...L</td>
<td>Enable internal blocking</td>
</tr>
<tr>
<td>Enable Room Scenarios 1...16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input a (binary input, contact scanning)</th>
<th>Disable</th>
<th>Switch sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description (40 characters)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enable internal blocking</td>
<td>no</td>
<td></td>
</tr>
</tbody>
</table>

| Input b (binary input, contact scanning) | Disable |               |
| Description (40 characters)             |         |               |
| Enable internal blocking                 | no      |               |

| Input c (binary input, contact scanning) | Disable |               |
| Description (40 characters)             |         |               |
| Enable internal blocking                 | no      |               |
## Webinar “Room Automation with KNX”
### Room Master RM/S 3.1 and RM/S 4.1

### ETS Parameter – input

<table>
<thead>
<tr>
<th>Device: 1.5.5 RM/S 3.1 Room Master, MDRC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
</tr>
<tr>
<td>Enable inputs a...f</td>
</tr>
<tr>
<td>a: Switch sensor</td>
</tr>
<tr>
<td>Enable inputs g...l</td>
</tr>
<tr>
<td>Enable outputs A...D</td>
</tr>
<tr>
<td>Enable outputs E...I</td>
</tr>
<tr>
<td>Enable Room Scenarios 1...16</td>
</tr>
<tr>
<td><strong>Debounce time</strong></td>
</tr>
<tr>
<td><strong>50 ms</strong></td>
</tr>
<tr>
<td><strong>Distinction between short and long operation</strong></td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td><strong>Opening the contacts -&gt; Event 0</strong></td>
</tr>
<tr>
<td><strong>Closing the contacts -&gt; Event 1</strong></td>
</tr>
<tr>
<td><strong>--- NOTE</strong></td>
</tr>
<tr>
<td><strong>Activate minimum signal duration</strong></td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td><strong>Scan input after download, ETS reset and bus voltage recovery</strong></td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td><strong>Enable communication objects:</strong></td>
</tr>
<tr>
<td>“Block” 1 bit</td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td>“Start event 0/1” 1 bit</td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td>“Switch 1” (cyclic sending possible)</td>
</tr>
<tr>
<td>yes</td>
</tr>
<tr>
<td>Reaction on event 0</td>
</tr>
<tr>
<td>TOGGLE</td>
</tr>
<tr>
<td>Reaction on event 1</td>
</tr>
<tr>
<td>no reaction</td>
</tr>
<tr>
<td>Internal connection</td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td>Cyclic sending</td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td>“Switch 2”</td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td>“Switch 3”</td>
</tr>
<tr>
<td>no</td>
</tr>
</tbody>
</table>
Overview outputs and functions

- Switching
  - Normally closes/Normally open
- Time
  - Staircase
  - On/Off delay
  - Flashing
  - Staircase time adjustable
- Scene
  - Allocation of outputs to scenes
- Two Presets
- Logic
  - AND/OR/XOR or GATE
- Forced operation
  - 1 Bit or 2 Bit
### ETS Parameter – output A...D

<table>
<thead>
<tr>
<th>Device: L3.5  RM/S 3.1 Room Master,MDRC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
</tr>
<tr>
<td>Enable inputs a...f</td>
</tr>
<tr>
<td>a: Switch sensor</td>
</tr>
<tr>
<td>Enable inputs g...l</td>
</tr>
<tr>
<td>Enable outputs A...D</td>
</tr>
<tr>
<td>A Output (20 AX C-Load)</td>
</tr>
<tr>
<td>Enable outputs E...L</td>
</tr>
<tr>
<td>Enable Room Scenarios 1...16</td>
</tr>
<tr>
<td><strong>Reaction of output</strong></td>
</tr>
<tr>
<td>N/O</td>
</tr>
<tr>
<td><strong>Contact position on bus voltage failure</strong></td>
</tr>
<tr>
<td>Unchanged</td>
</tr>
<tr>
<td><strong>Object value “Switch” on bus voltage recovery</strong></td>
</tr>
<tr>
<td>not write</td>
</tr>
<tr>
<td><strong>Enable function time</strong></td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td><strong>Enable function scene</strong></td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td><strong>Enable function logic</strong></td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td><strong>Enable function forced operation</strong></td>
</tr>
<tr>
<td>no</td>
</tr>
<tr>
<td><strong>Enable communication object “Status Switch” 1 bit</strong></td>
</tr>
<tr>
<td>yes</td>
</tr>
<tr>
<td><strong>Send object value</strong></td>
</tr>
<tr>
<td>after a change</td>
</tr>
<tr>
<td><strong>Object value of contact position</strong></td>
</tr>
<tr>
<td>1 = closed, 0 = opened</td>
</tr>
</tbody>
</table>
Webinar “Room Automation with KNX”
Room Master RM/S 3.1

ETS Parameter – output E...L

Device: RM/S 3.1 Room Master, MDRC

General
Enable inputs a...f
- Switch sensor
Enable inputs g...l
Enable outputs A...D
- Output (20 AX C-Load)
Enable outputs E...L

Output E, F (6 A)
(with switch actuator E only)
Description
(40 characters)

Output G, H (6 A)
(with switch actuator G only)
Description
(40 characters)

Output I, J (6 A)
(with switch actuator I only)
Description
(40 characters)

Output K, L (6 A)
(with switch actuator K only)
Description
(40 characters)

Output E...L
- Blind
- Shutter

Output G...L
- Disable
- Switch actuator

Output I...L
- Disable
- Switch actuator

Output K...L
- Disable
- Switch actuator
Preconfigured ETS projects as a new service

- ABB offers a special service for the Room Master 3.1, predefined ETS projects for apartments
- These applications can be easily loaded into the devices through the ETS software after the physical address has been allocated
- They are then preprogrammed for the desired type of use
- Additional ETS parameter assignment is not needed
- For each type of application, ABB offers also detailed descriptions and planning aids
- Preconfigured ETS applications as well as the pertaining descriptions and planning aids can be downloaded from the ABB website
Preconfigured ETS application: Retirement appartement

Predefined functionality

Basis of planning
# Room planning

## Room Master 3.1 – Demo case

<table>
<thead>
<tr>
<th>Input</th>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>21,23</td>
<td>Room light ON/OFF</td>
</tr>
<tr>
<td>b</td>
<td>22,23</td>
<td>Light wardrobe ON/OFF</td>
</tr>
<tr>
<td>c</td>
<td>24,26</td>
<td>Light reading corner ON/OFF</td>
</tr>
<tr>
<td>d</td>
<td>25,26</td>
<td>Socket outlet balcony ON/OFF</td>
</tr>
<tr>
<td>e</td>
<td>27,29</td>
<td>Light balcony ON/OFF</td>
</tr>
<tr>
<td>f</td>
<td>28,29</td>
<td>Central OFF (Light and socket outlet balcony)</td>
</tr>
<tr>
<td>g</td>
<td>30,32</td>
<td>Shutter door balcony UP</td>
</tr>
<tr>
<td>h</td>
<td>31,32</td>
<td>Shutter door balcony DOWN</td>
</tr>
<tr>
<td>i</td>
<td>33,35</td>
<td>Shutter balcony UP</td>
</tr>
<tr>
<td>j</td>
<td>34,35</td>
<td>Shutter balcony DOWN</td>
</tr>
<tr>
<td>k</td>
<td>36,38</td>
<td>Shutter street UP</td>
</tr>
<tr>
<td>l</td>
<td>37,38</td>
<td>Shutter street DOWN</td>
</tr>
</tbody>
</table>

## Output

<table>
<thead>
<tr>
<th>Input</th>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1,2</td>
<td>Room light</td>
</tr>
<tr>
<td>B</td>
<td>3,4</td>
<td>Light wardrobe</td>
</tr>
<tr>
<td>C</td>
<td>5,6</td>
<td>Light reading corner</td>
</tr>
<tr>
<td>D</td>
<td>7,8</td>
<td>Socket outlet balcony</td>
</tr>
<tr>
<td>E ( Up)</td>
<td>9,10</td>
<td>Light balcony</td>
</tr>
<tr>
<td>F ( Down)</td>
<td>9,11</td>
<td>Shutter door balcony</td>
</tr>
<tr>
<td>G ( Up)</td>
<td>12,13</td>
<td>Shutter balcony</td>
</tr>
<tr>
<td>H ( Down)</td>
<td>12,14</td>
<td>Shutter street</td>
</tr>
<tr>
<td>I ( Up)</td>
<td>15,16</td>
<td>Shutter balcony</td>
</tr>
<tr>
<td>J ( Down)</td>
<td>15,17</td>
<td>Shutter street</td>
</tr>
<tr>
<td>K ( Up)</td>
<td>18,19</td>
<td>Shutter balcony</td>
</tr>
<tr>
<td>L ( Down)</td>
<td>18,20</td>
<td>Shutter street</td>
</tr>
</tbody>
</table>
Room planning
Room Master 3.1 – Demo case

<table>
<thead>
<tr>
<th>Internal links</th>
<th>Switch energy</th>
<th>Control shutter/blinds or switch energy</th>
<th>Optional functional expansion via KNX</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>IS1*</td>
<td>IS1*</td>
<td></td>
</tr>
<tr>
<td>g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Internal scene 1 via room scenario 1
Webinar “Room Automation with KNX”
Room Master RM/S 3.1

Connections

- Sockets
  - Consumer
  - Shutter, Blinds, Curtains

Commands
- internal control
- direct connection
- via KNX

Inputs

Master

Remote access

KNX Sensor
Webinar “Room Automation with KNX”
Room Master

- Concept of Programming
- Controlling Scenes
- Room Scenario
Webinar “Room Automation with KNX”
Room Master – Concept of Programming

Normal KNX programming with group addresses

Group addresses

Bus-coppler
NEW Internal Connections

- Like internal wiring
- Works without group addresses
- Adjustable via ETS Parameters
- Works additionally to the normal KNX programming with group addresses
**Webinar “Room Automation with KNX”**

**Room Master – Concept of Programming**

**ETS Parameter – internal connection**

<table>
<thead>
<tr>
<th>Device</th>
<th>1.3.5 RM/S 3.1 Room Master, MDRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Enable communication object: &quot;Block&quot; 1 bit</td>
</tr>
<tr>
<td></td>
<td>Debounce time: 50 ms</td>
</tr>
<tr>
<td></td>
<td>Connected contact type: normally open</td>
</tr>
<tr>
<td>Enable inputs g...l</td>
<td>Internal connection with blind output: no</td>
</tr>
<tr>
<td>Enable outputs A...D</td>
<td>Operating functionality of blind: EF</td>
</tr>
<tr>
<td>A: Output (20 AX C-Loed)</td>
<td>GH</td>
</tr>
<tr>
<td>Enable outputs E...L</td>
<td>JJ</td>
</tr>
<tr>
<td>EF: Blind (6 A)</td>
<td>KL</td>
</tr>
<tr>
<td>- Drive</td>
<td>- Note</td>
</tr>
<tr>
<td>Enable Room Scenarios 1...16</td>
<td>Long operation: STOP/stepwise</td>
</tr>
<tr>
<td></td>
<td>Long operation: Move UP/DOWN</td>
</tr>
<tr>
<td></td>
<td>Long operation after: 0.5 s</td>
</tr>
<tr>
<td></td>
<td>Reaction on short operation: STOP / slat UP</td>
</tr>
<tr>
<td></td>
<td>Reaction on long operation: MOVE UP</td>
</tr>
</tbody>
</table>
Internal connection and normal KNX programming with group addresses

Room Master allows to use both ways of programming in parallel!
How does it work?

There are three possibilities:

1. Store scenes in a “scene controller” e.g. Logic Module LM/S 1.1
2. Store scenes in a sensor
3. Store scenes in actuators (preferred solution)
Webinar “Room Automation with KNX”
Controlling Scenes: Store scenes in a “scene controller”

Push button
Scene 1-8

8 independent scenes with 6 output objects

Max. 6 telegrams with the useful data on/off/value/up/down/…
(6 actuator groups)

30% off off off on

up down
Max. 8 telegrams with the useful data on/off/value/up/down/… (8 actuator groups)

The information (brightness value, up/down) are stored in the pushbutton and sent to the devices!

More bus traffic
Webinar “Room Automation with KNX”
Controlling Scenes: Store scenes in actuators (8-bit)

Short: Calling KNX scene No. 17 with a 8-bit telegram

Push button

15% 30% off off off on

Dim actuator UD/S
Scene No. 17:
Output A: 15%
Output B: 30%

Switch actuator SA/S
Scene No. 17:
Output A: OFF

DALI gateway DG/S
Scene No. 17:
Group 1: 50%
Group 16: 10%

Shutter actuator JRA/S
Scene No. 17:
Output A: 20%
Output D: 90%

→ All scene devices, such as a channel of the dim actuator, are addressed by the same group address
Webinar “Room Automation with KNX”
Controlling Scenes: Store scenes in actuators (8-bit)

Calling KNX scene No. 4 “Good Night”

Push button

Dim actuator UD/S
Bedroom: A - n.A.
Staircase: B - 0%

Switch actuator SA/S
Kitchen light: A - OFF
Kitchen socket outlets: B - OFF
Living room light: C - OFF
Bathroom light: D - OFF
Children room: E - n.A.

Shutter actuator JRA/S
Kitchen: A - 100%
Living room: B - 100%
Bathroom: C - 90%
Bedroom: D - 90%
Children room: E - n.A.

Security Module:
Internal Set

n.A. – no assignment
Webinar “Room Automation with KNX”

Controlling Scenes: Store scenes in actuators (8-bit)

Calling KNX scene No. 6 “Good Morning”

Push button

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

n.A. – no assignment

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

Shutter actuator JRA/S
- Kitchen: A - 0%
- Living room: B - 50%
- Bathroom: C - 0%
- Bedroom: D - 0%
- Children room: E - n.A.

Security Module:
- Unset
Webinar “Room Automation with KNX”
Room Master – Room Scenario and how does it work?

Commands
- internal control
- direct connection
- via KNX
Webinar “Room Automation with KNX”
Room Master – Room Scenario

- Altogether 16 Room Scenario are configurable
  - Room Scenario are grouped in pairs
    - Insert Keycard
    - Remove Keycard
- Each Room Scenario
  - Can be activated on receipt of an external 1 byte telegram or device internally via a binary input
  - Can control up to 7 communication objects. These can be used to control the Room Master itself, external KNX-device in the room or in the building, e.g. the reception
Webinar “Room Automation with KNX”
Room Master – Room Scenario

- External commands from the Reception (via KNX)
  - Check In – Room occupied
  - Check Out – Room vacant
  - Standby – Room free for Service
- Device internal commands from the binary inputs
  - Keycard at the entrance
  - Master Switch at the bedside
  - Emergency call in the bathroom
- Room internal commands (via KNX)
  - Sensor inputs switch outputs
  - Change of operating mode via Room Thermostat (RTH)
  - Integration of further KNX-devices
Webinar “Room Automation with KNX”
Room Master – Room Scenarios (configured)

- RS 1 Check In
- RS 2 Check Out
- RS 3 Standby
- RS 4 Emergency Call
- RS 5 Keycard remove
- RS 6 Keycard move
- RS 7 Master OFF
- RS 8 Master ON
- RS 9 free
- RS 10 free
- RS 11 free
- RS 12 free
- RS 13 free
- RS 14 free
- RS 15 free
- RS 16 free

- All Room Scenario are freely configurable
Webinar “Room Automation with KNX”
Room Master – Room Scenario

- A Room Scenario consists of two control events
  - One can be sent immediately
  - Other can be sent with a delay
- Per control event it can configured whether
  - A KNX 8-bit scene is trigged internally or via the KNX
  - Two 1-bit values are sent
  - The Room Temperature is switched on/off
  - A certain operation mode in the Room Thermostat is set
  - The automatic function for the blinds is activated/deactivated
  - The internal blocking of the inputs is activated/deactivated
Webinar “Room Automation with KNX”
Room Master – Room Scenario

- On activation of a Room Scenario a KNX scene will be enabled
- This has clear advantages:
  - Simple integration of further sensors and actors in the room
  - Clear separation to other rooms by use of one “room-group address”
  - No unnecessary bus load by internal Room Scenario (internal used)
  - Flexible configuration of the functionality
Webinar “Room Automation with KNX”
Room Master – Room Scenario

Room Scenario No. X
RM/S x.1

Internal connection e.g. binary input
External (KNX)
Communication object 1 Byte
„Room Scenario 1..16 recall“

Event 1 starts immediately
- Switch 1
- Switch 2
- Automatic blind recall
- Scene x recall
- Internal block recall
- Thermostat ON/OFF
- Thermostat operating mode
- Scene x recall internal
- Internal block recall

Event 2 starts delayed

Communication object 1 Byte
„Room Scenario 1..16 recall“
Webinar “Room Automation with KNX”
Room Master – Room Scenario - Floor plan

Hotel Room (1 ½ Room)

Commands
- internal control
- direct connection
- via KNX
Webinar “Room Automation with KNX”
Check In – Reception activates Room Scenario 1

- Floor light and the desk light switch on
- Room Thermostat change the operating mode to Comfort
- Specified inputs are blocked

Commands
- internal control
- direct connection
- via KNX
Webinar “Room Automation with KNX”
Check In – Reception activates Room Scenario 1

Scene no. 4:
Floor light and the desk light switch on
Room Thermostat ON
Room Thermostat change to Comfort mode
Specified inputs are blocked
Webinar “Room Automation with KNX”

Keycard remove (scenario 5)

- Floor light switch off with a delay, remainder incl. sockets immediately
- Change Room Thermostat the operating mode to Building protection, blind in automatic, specified inputs are blocked

Commands
- internal control
- direct connection
- via KNX
# Webinar “Room Automation with KNX”
## Room Master – Comparison

<table>
<thead>
<tr>
<th></th>
<th>RM/S 1.1</th>
<th>RM/S 2.1</th>
<th>RM/S 3.1</th>
<th>RM/S 4.1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inputs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Binary via Contact Scanning</td>
<td>8</td>
<td>18</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td><strong>Outputs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relay 20 A (16 AX)</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Relay 16 A (10 AX)</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Relay 6 A</td>
<td>-</td>
<td>9</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>Fanspeeds or Relay 6 A</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Electronic Output 0.5 A</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Change Over Contact 6 A (Shutter/blinds)</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Change Over Contact 6 A or Relay 6 A</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>
Webinar “Room Automation with KNX”
Room Master RM/S

Top Arguments for the Room Master

- Version 1.1 and 2.1 especially developed for hotel rooms
- Unique software concept with room scenarios
- Internal connection without group addresses
- Preparametrized application/projects for plug and play
- Cost efficient due to “one device” concept and binary inputs for conventional push buttons
- Extendable with further MDRC devices, e.g. dimmer
Webinar “Room Automation with KNX”
Overview I/O-Actuators

- The IO/S x.6.1.1 features four/eight outputs for control of lighting circuits
- Internal Link between in- and outputs (“Internal wiring”)
- No group addresses necessary
- Limited functions of “Switch Actuator“ and „Binary Input“
- Switching outputs 6 A
- Binary inputs via contact scanning
## Webinar “Room Automation with KNX”

### In-/Outputs functions

The following table provides an overview of the functions possible with the inputs/outputs of the device and the application I/O Actuator:

- **Functions of the inputs**
  - Switch sensor: X
  - long/short operation: X
  - Blocking: X
  - up to 3 GA’s can be sent: X
  - Value / forced operation: X

- **Functions of the outputs**
  - Normally closed contact: X
  - Normally open contact: X
  - Staircase lighting: X
# Webinar “Room Automation with KNX”

## In-/Outputs functions

### ETS Parameter – input

<table>
<thead>
<tr>
<th>Device: 1.5.1 IO/ID.1.1 IO-Actuator B</th>
<th>MDRC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Enable inputs a...d</td>
<td></td>
</tr>
<tr>
<td><strong>a: Switch sensor</strong></td>
<td></td>
</tr>
<tr>
<td>Enable inputs e...h</td>
<td></td>
</tr>
<tr>
<td>Enable outputs A...D</td>
<td></td>
</tr>
<tr>
<td>A: Output (6A)</td>
<td></td>
</tr>
<tr>
<td>Enable outputs E...H</td>
<td></td>
</tr>
<tr>
<td><strong>Debounce time</strong></td>
<td>50 ms</td>
</tr>
<tr>
<td>Distinction between short and long operation</td>
<td>no</td>
</tr>
<tr>
<td>Opening the contacts =&gt; Event 0</td>
<td></td>
</tr>
<tr>
<td>Closing the contacts =&gt; Event 1</td>
<td></td>
</tr>
<tr>
<td>Activate minimum signal duration</td>
<td></td>
</tr>
<tr>
<td>Scan input after download, ETS reset and bus voltage recovery</td>
<td>no</td>
</tr>
<tr>
<td><strong>Enable communication objects:</strong></td>
<td></td>
</tr>
<tr>
<td>“Block” 3 bit</td>
<td>no</td>
</tr>
<tr>
<td>“Start event 0/1” 1 bit</td>
<td>no</td>
</tr>
<tr>
<td>“Switch 1” (cyclic sending possible)</td>
<td>yes</td>
</tr>
<tr>
<td>Reaction on event 0</td>
<td>no reaction</td>
</tr>
<tr>
<td>Reaction on event 1</td>
<td>TOGGLE</td>
</tr>
<tr>
<td>Internal connection</td>
<td>no</td>
</tr>
<tr>
<td>Cyclic sending</td>
<td>no</td>
</tr>
<tr>
<td>“Switch 2”</td>
<td>no</td>
</tr>
<tr>
<td>“Switch 3”</td>
<td>no</td>
</tr>
</tbody>
</table>
Webinar “Room Automation with KNX”
In-/Outputs functions

**ETS Parameter – output**

<table>
<thead>
<tr>
<th>Device: 1.5.1 ID/S8.6.1:1 IO-Actuator 8f/MRDC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
</tr>
<tr>
<td>Enable inputs a...d</td>
</tr>
<tr>
<td>a: Switch sensor</td>
</tr>
<tr>
<td>b: Value / forced operation</td>
</tr>
<tr>
<td>Enable inputs e...h</td>
</tr>
<tr>
<td>Enable outputs A...D</td>
</tr>
<tr>
<td><strong>A: Output (6A)</strong></td>
</tr>
<tr>
<td>Enable outputs E...H</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Reaction of output</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Correct position on bus voltage failure</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unchanged</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Object value “Switch” on bus voltage recovery</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>not write</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Enable function time</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Enable communication object “Status Switch” 1 bit</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Send object value</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>after a change or on request</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Object value of contact position</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = closed, 0 = opened</td>
</tr>
</tbody>
</table>
**Webinar “Room Automation with KNX”**  
**In-/Outputs functions**

**ETS Parameter – internal connection**

<table>
<thead>
<tr>
<th>Device: 1.5.1</th>
<th>IO/SI6.1.1</th>
<th>IO-Actuator B</th>
<th>MDRC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enable inputs a...d</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a: Switch sensor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b: Value / forced operation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enable inputs e...h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enable outputs A...D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As Output (6A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enable outputs E...H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Debounce time</strong></td>
<td>50 ms</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>Distinction between short and long operation</strong></td>
<td>no</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td>Opening the contacts =&gt; Event 0</td>
<td>c--- NOTE</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td>Closing the contacts =&gt; Event 1</td>
<td>no</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td>Activate minimum signal duration</td>
<td>no</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td>Scan input after download, ETS reset and bus voltage recovery</td>
<td>no</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>Enable communication objects</strong></td>
<td>no</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td><em>Block</em> 1 bit</td>
<td>no</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td><em>Start event 0/1</em> 1 bit</td>
<td>no</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td><em>Switch 1</em> (cyclic sending possible)</td>
<td>yes</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td>Reaction on event 0</td>
<td>no reaction</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td>Reaction on event 1</td>
<td>TOGGLE</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>Internal connection</strong></td>
<td>no</td>
<td>&lt;select&gt;</td>
<td></td>
</tr>
<tr>
<td>Cyclic sending</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Switch 2</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Switch 3</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Output A (6 A)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output B (6 A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output C (6 A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output D (6 A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output E (6 A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output F (6 A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output G (6 A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output H (6 A)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Webinar “Room Automation with KNX”
IO/S 4.6.1.1
Webinar “Room Automation with KNX”
IO/S 8.6.1.1
Webinar “Room Automation with KNX”

Argumentation

- Why using KNX with I/O Actuator **instead of a conventional Installation**?
  - Group- or central commands easily possible
    → with conventional installation very complex
  - Any extension of the installation and functionality easily possible
    → flexible and future oriented thanks to KNX
  - Stand alone operation with small auxiliary power supply but without any ETS programming
    → like conventional installation with option KNX
  - Installation and wiring is simple
    → all wires (In- and Outputs) to the distribution board with the I/O-Actuator

→ Any project, planned the conventional way, is now a project for an I/O-Actuator!
Webinar “Room Automation with KNX”
Marketing Material

- www.abb.com/knx
- Link to everything around the Room Master
- Introduction Movie, Product information and more …

→ ABB i-bus KNX Room Master Concept
You specialize in installing electrical systems. With the ABB Room Master, it is simple to enter the KNX world – conveniently from your office.
The ABB Room Master concept brings the conventional electrical installation and networked KNX intelligent building control closer together. There are no longer any barriers to enter the fascinating world of intelligent building control and the diverse options it offers.

Four devices for flexible applications
Room Master devices are combined units with input and output functions – the right device for every application. The special feature of the Room Master product range is its internal wiring; inputs and outputs can be internally connected without group addresses using the ETS software. This can be done quickly in advance at the workshop. After installation of a Room Master device with internal links, a room (apartment, classroom, office, hotel or hospital room) is promptly ready for use – entirely without software work at the construction site at first. Start using the KNX intelligent building control system now, and offer your customers future-proof solutions for all requirements.

Comprehensive support
You can increase customer loyalty as an electrical contractor with technical expertise in intelligent building control, because only satisfied customers mean new customers. This expertise will allow you to increase your revenue over the long term. Let a sales representative present the simple first steps into intelligent building control with the ABB Room Master in person on site. Alternatively, you can make use of our classroom or online further training offers.

Further Information
To BROCHURE “Your first step into the KNX world”
You specialize in installing electrical systems. With the ABB Room Master, it is...
Webinar “Room Automation with KNX”
Documentation

Brochures:

- Your first step into the KNX World
  - http://www05.abb.com/global/scot/scot209.nsf/veritydisplay/02a420f55d2bc8a7c1257b960044f049/$file/2CDC514097B0201.pdf

- The right decision for you and your guests
  - http://www.knx-gebaeudesysteme.de/sto_g/English/GENERAL_DOCUMENTATION/Room_Master_Hotel_Brochure_2CDC514050B0201.pdf
Webinar “Room Automation with KNX”

- Tested ETS4 project with preconfigured functionality

- Planning templates
Webinar “Room Automation with KNX” eLearning
Webinar “Room Automation with KNX”

Documentation

- Room Master in Hotel Neu Heidelberg
Webinar “Room Automation with KNX”
Video Room Controller

http://www.knx-gebaeudesysteme.de/sto_g/_All/OTHER/RCA_81_MO_V_EN_V1-0_LOW_RES.MPG
Webinar “Room Automation with KNX”
Next Webinar

Metering and KNX
5th of November 2014
KNX Association now offers many webinars to inform about various KNX-related topics:

- ETS Apps
- KNX Basics
- ETS5
Power and productivity for a better world™