



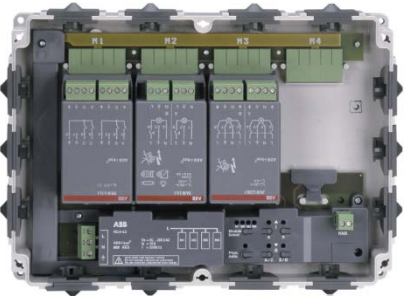
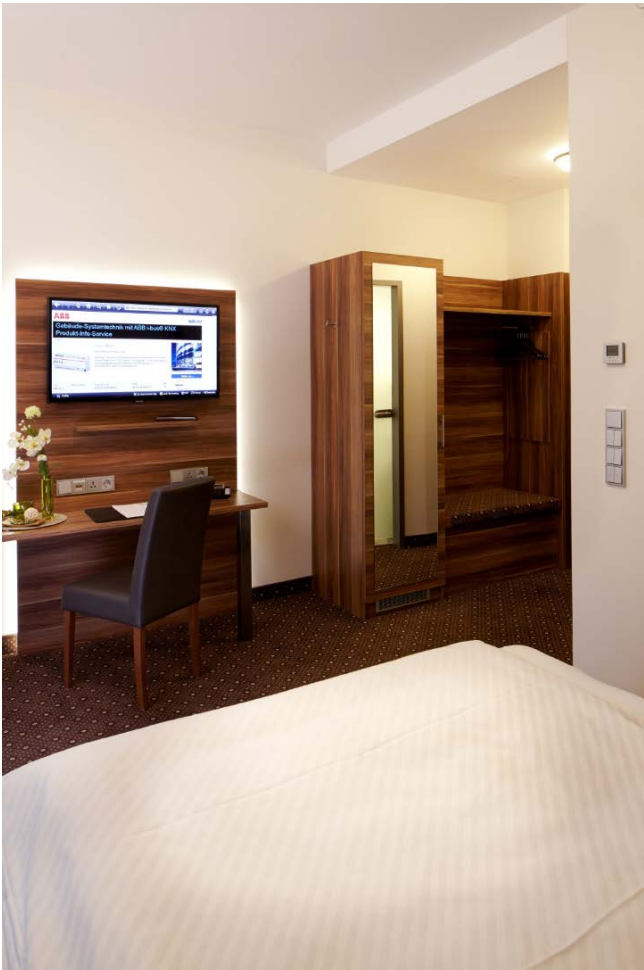
Thorsten Reibel/Jürgen Schilder – ABB Customer Training Center Heidelberg – October 2014

ABB STOTZ-KONTAKT GmbH

ABB i-bus[®] KNX

Webinar “Room Automation with KNX”

Webinar “Room Automation with KNX”



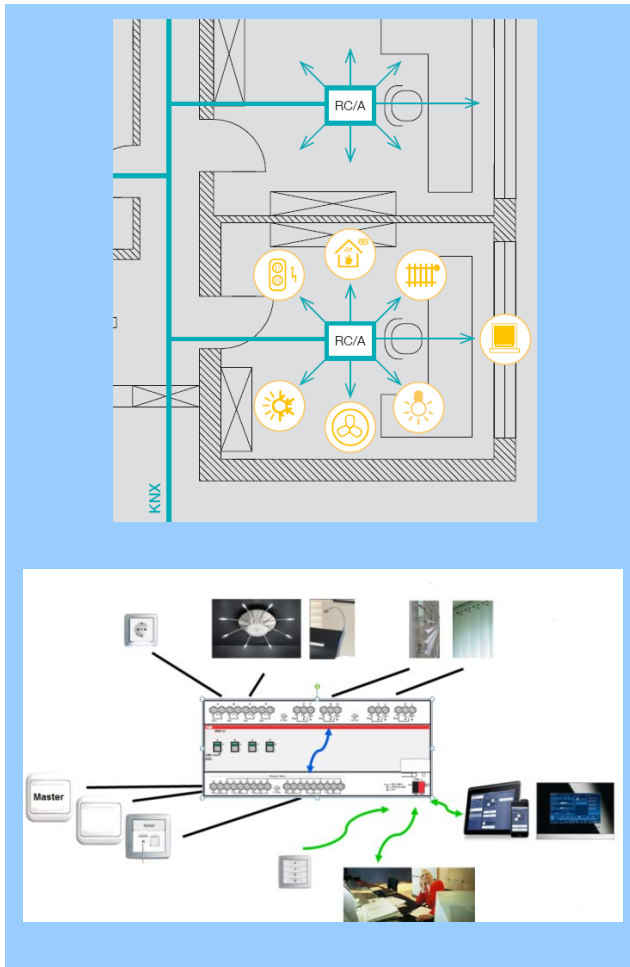
Webinar “Room Automation with KNX”

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

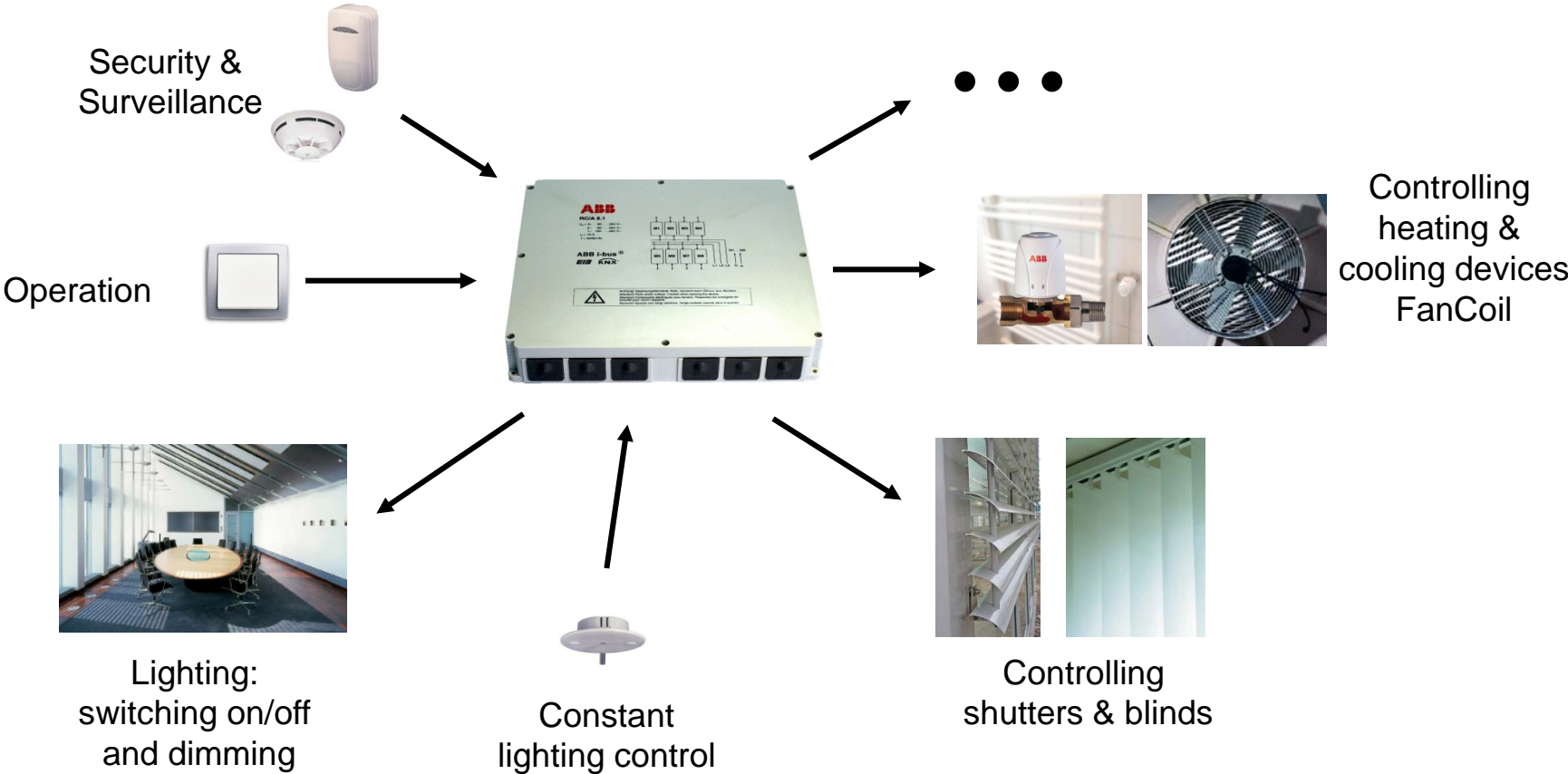


Webinar “Room Automation with KNX”

Room Controller RC/A

The “one device per room“- principle:

- A single Room Controller controls all the room functions



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

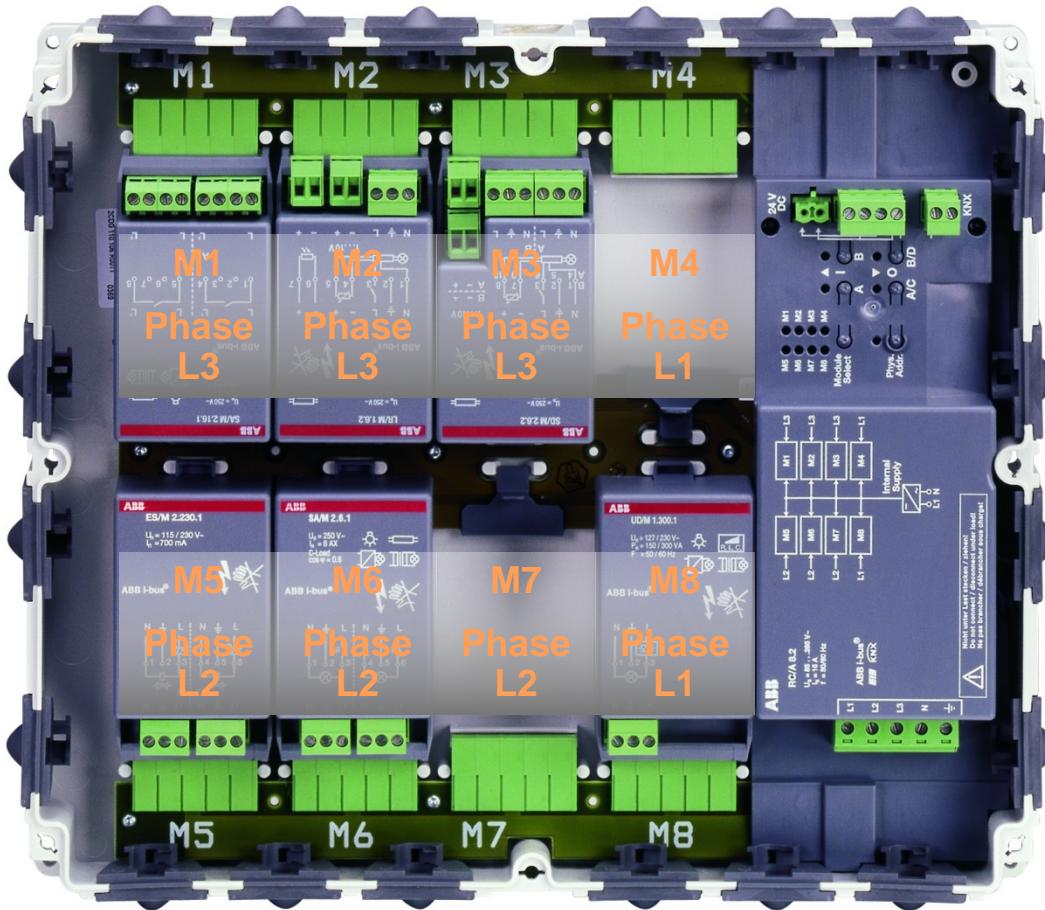
Modules:

- 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”

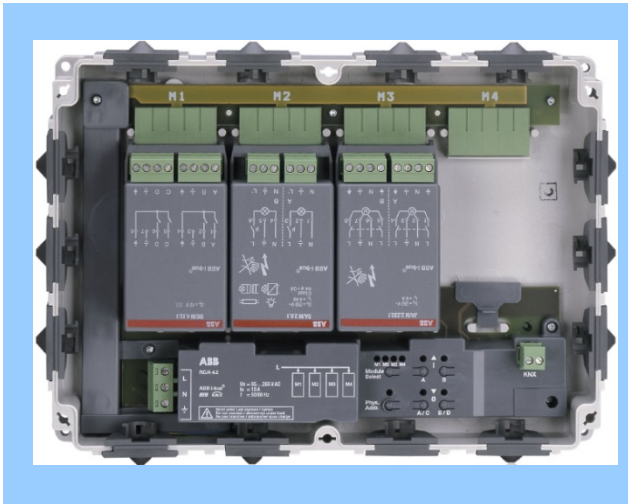
Room Controller RC/A 8.2



- 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

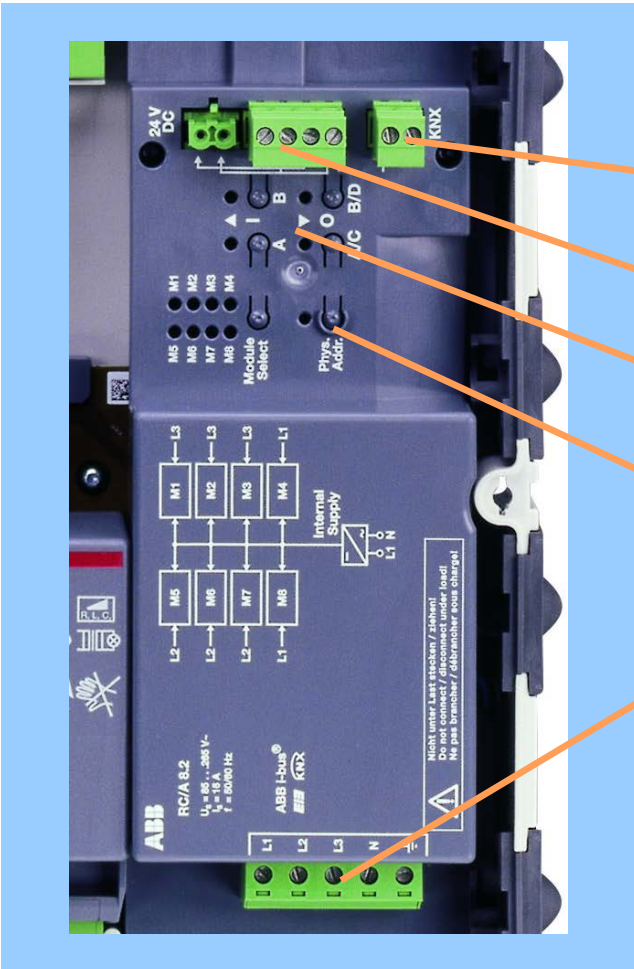


ABB i-bus® KNX

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

RoomController parameters - General

Select module slot

General

Module slots

- M1: not used
- M2: not used
- M3: not used
- M4: not used
- M5: not used
- M6: not used
- M7: not used
- M8: not used

Exchange Copy

Communication objects

Object	Name	Function	Group addresses
240	General	Error signal	
241	General	Status (general)	
242	General	Error module func...	
243	General	Module allocation...	
244	General	Status module all...	

Modify Link

OK Cancel Default Info Low access Convert Help

Initialisation Security

Initialisation time after recovery of bus voltage or mains voltage : (min:s)

During initialisation the outputs remain unchanged <--- NOTE

Sending delay after initialisation : (min:s)

During sending delay no telegrams are sent on the bus <--- NOTE

Webinar “Room Automation with KNX”

Room Controller RC/A 8.2

RoomController parameters - M5: UD/M 1.300.1: Universal Dim Actuator 1-fold

Select module slot

General

Module slots

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

Exchange Copy

Communication objects

Object	Name	Function	Group addresses
0	Output	Switch	
2	Output	Relative dimming	
3	Output	Brightness value	
5	Output	Forced operation	
6	Output	Error signal	
7	Output	Error code	
8	Output	Call preset 1 and 2	
10	Output	Call preset 3 and 4	
12	Output	8-bit scene	

Modify Link

Scene(2) | Switch | Dimming | Value

Module | General | Function | Presets | A: Charact. adj. | Scene(1)

Enable function "presets"

Enable characteristic adjustment

Enable function "forced operation"

Brightness on object value = 3 (forced operation = active, DN)

Automatic load detection is active

Filter against ripple control signals is active

Select extra function

OK Cancel Default Info Low access Convert Help

Webinar “Room Automation with KNX”

Room Controller RC/A 8.2

RoomController parameters - General

Select module slot

General

Module slots

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

Communication objects

Object	Name	Function	Group addresses
240	General	Error signal	
241	General	Status (general)	
242	General	Error module func...	
243	General	Module allocation...	
244	General	Status module all...	

Buttons: Exchange, Copy, Modify, Link, OK, Cancel, Default

Select group for object 240 <General: Error signal>

Maingroup Middlegroup Subgroup Error signal (unknown)

1.2.1 RC/A8.2 Room Controller,8 Modules,SM

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

[3] Floor No. 03

- [0] Central
- [1] Light
 - [11] Room 3-001 Light entrance area on/off
 - [12] Room 3-001 Light entrance area st...
 - [31] Room 3-001 light bed on/off
 - [32] Room 3-001 light bed dim
 - [33] Room 3-001 light bed value
 - [51] Room 3-001 Light main room ceiling...
 - [52] Room 3-001 Light main room ceiling...

PhysAddr	Device	Obj...	ObjType	ObjFunc	Group addresses	ObjName
01.02.001	1.2.1 R...	1:00	1 bit	Switch	3/1/31	Output A
01.02.001	1.2.1 R...	1:15	1 bit	Switch		Output B

PhysAddr	Device	Obj...	ObjType	ObjFunc	ObjName	Prio	C	R
01.02.001	1.2.1 R...	1:00	1 bit	Switch	Output A	Low	+	-

Webinar “Room Automation with KNX”

Room Controller RC/A 8.2

ETS4 - Test

ETS Edit Workplace Commissioning Diagnostics Extras Window Help

New Close Project Print Undo Redo Workplace Catalogs Diagnostics

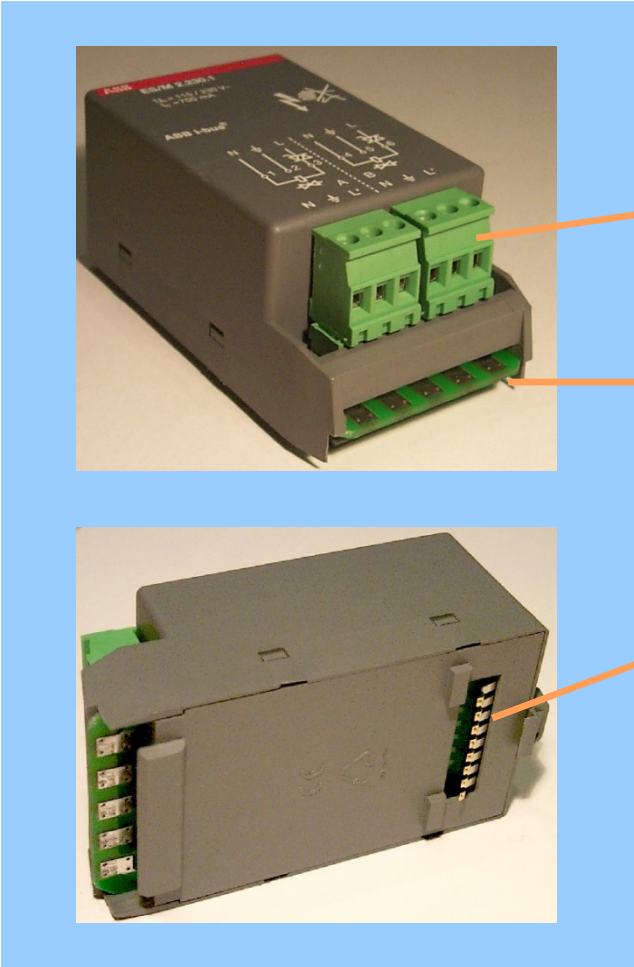
Topology

Add Devices Delete New Dynamic Folder

Number	Name	Object Function	Description	Group Addresses	Length	C	R	W	T	U	Data Type	Priority
0	Output A:Switch	M1_00			1 bit	C	-	W	-	-		Low
15	Output B:Switch	M1_15			1 bit	C	-	W	-	-		Low
30	Output A:Move blind Up-Down	M2_00			1 bit	C	-	W	-	-		Low
31	Output A:Slat adjustment / Stop	M2_01			1 bit	C	-	W	-	-		Low
32	Output A:Move to position 0..255	M2_02			1 Byte	C	-	W	T	-		Low
33	Output A:Move slats 0..255	M2_03			1 Byte	C	-	W	T	-		Low
44	Output B:Move blind Up-Down	M2_14			1 bit	C	-	W	-	-		Low
45	Output B:Slat adjustment / Stop	M2_15			1 bit	C	-	W	-	-		Low
46	Output B:Move to position 0..255	M2_16			1 Byte	C	-	W	T	-		Low
47	Output B:Move slats 0..255	M2_17			1 Byte	C	-	W	T	-		Low
60	Output A:Switch	M3_00			1 bit	C	-	W	T	-		Low
62	Output A:Relative dimming	M3_02			4 bit	C	-	W	T	-		Low
63	Output A:Brightness value	M3_03			1 Byte	C	-	W	T	-		Low
75	Output B:Switch	M3_15			1 bit	C	-	W	T	-		Low
77	Output B:Relative dimming	M3_17			4 bit	C	-	W	T	-		Low
78	Output B:Brightness value	M3_18			1 Byte	C	-	W	T	-		Low
90	Output:Switch	M4_00			1 bit	C	-	W	T	-		Low
92	Output:Relative dimming	M4_02			4 bit	C	-	W	T	-		Low
93	Output:Brightness value	M4_03			1 Byte	C	-	W	T	-		Low
102	Light control:Activate control	M4_12			1 bit	C	R	W	-	-		Low
103	Light control:Enable calibration	M4_13			1 bit	C	R	W	-	-		Low
104	Light control:Calibration lighting	M4_14			1 bit	C	-	W	-	-		Low
105	Light control:Calibration daylight	M4_15			1 bit	C	R	W	-	-		Low
107	Light control:Setpoint	M4_17			1 Byte	C	R	W	T	-		Low
108	Input light sensor:Sensor value	M4_18			1 Byte	C	R	-	-	-		Low
120	Output:Switch	M5_00			1 bit	C	-	W	T	-		Low
122	Output:Relative dimming	M5_02			4 bit	C	-	W	T	-		Low
123	Output:Brightness value	M5_03			1 Byte	C	-	W	T	-		Low
125	Output:Forced operation	M5_05			2 bit	C	-	W	-	-		Low
126	Output:Error signal	M5_06			1 bit	C	R	-	T	-		Low
127	Output:Error code	M5_07			1 Byte	C	R	-	T	-		Low
128	Output:Call preset 1 and 2	M5_08			1 bit	C	-	W	-	-		Low
130	Output:Call preset 3 and 4	M5_10			1 bit	C	-	W	-	-		Low
132	Output:8-bit scene	M5_12			1 Byte	C	-	W	-	-		Low
240	General:Error signal				1 bit	C	R	W	T	U		Low
241	General:Status (general)				1 Byte	C	R	W	T	U		Low
242	General:Error module function				1 Byte	C	R	W	T	U		Low
243	General:Module allocation request				1 bit	C	R	W	T	U		Low
244	General:Status module allocation				14 Byte	C	R	W	T	U		Low

Webinar “Room Automation with KNX”

Room Controller RC/A



The Modules

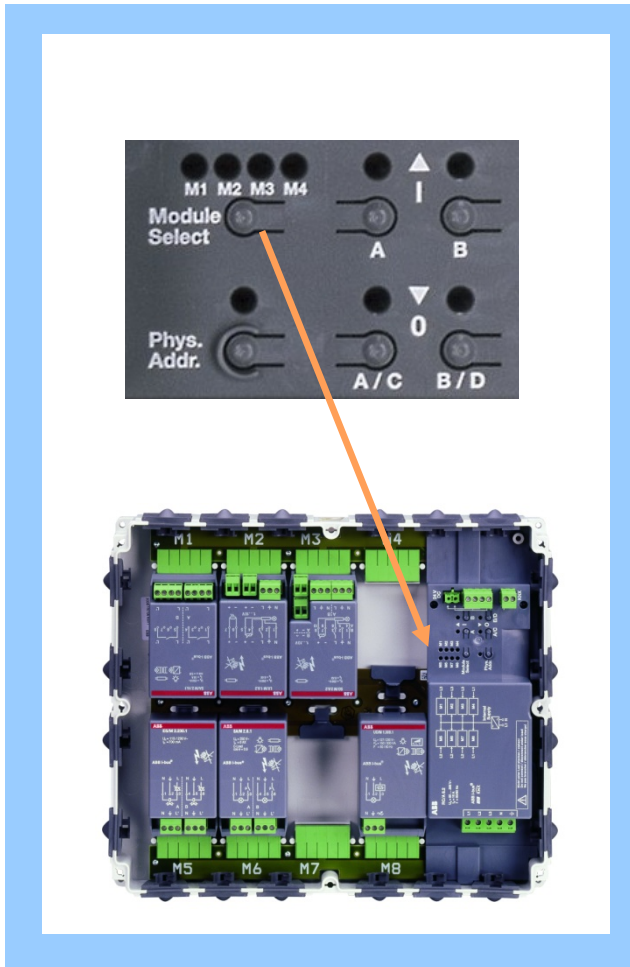
Connection terminals
(plug in screw type terminals)

Power input

Contacting of
the control lines

Webinar “Room Automation with KNX”

Room Controller RC/A

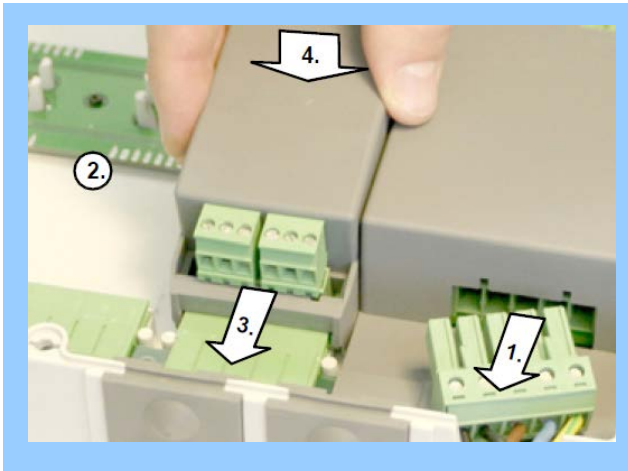


Quick installation

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

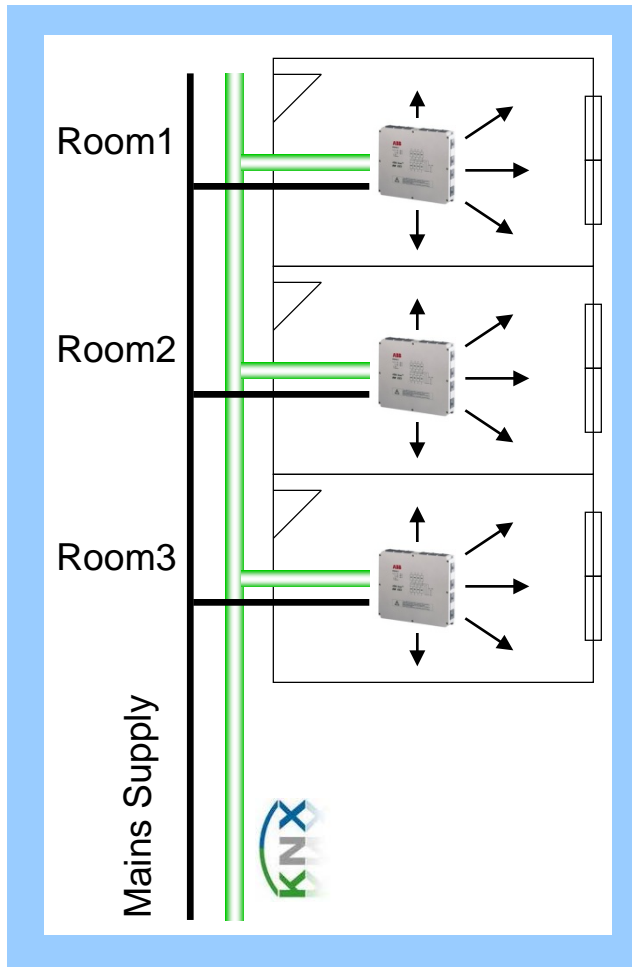


Installing the modules

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

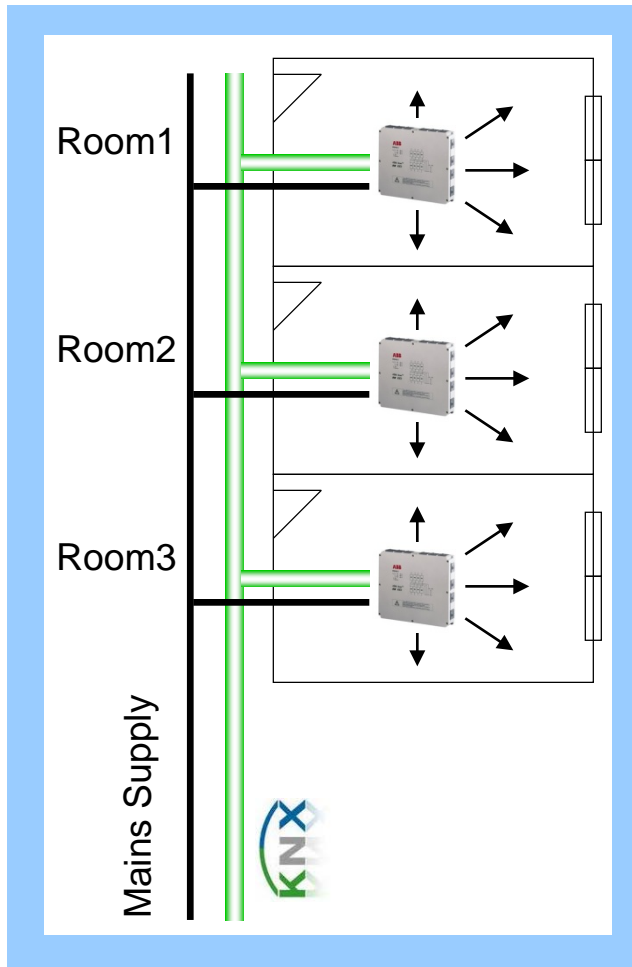


Top Arguments for the Room Controller

- 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

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

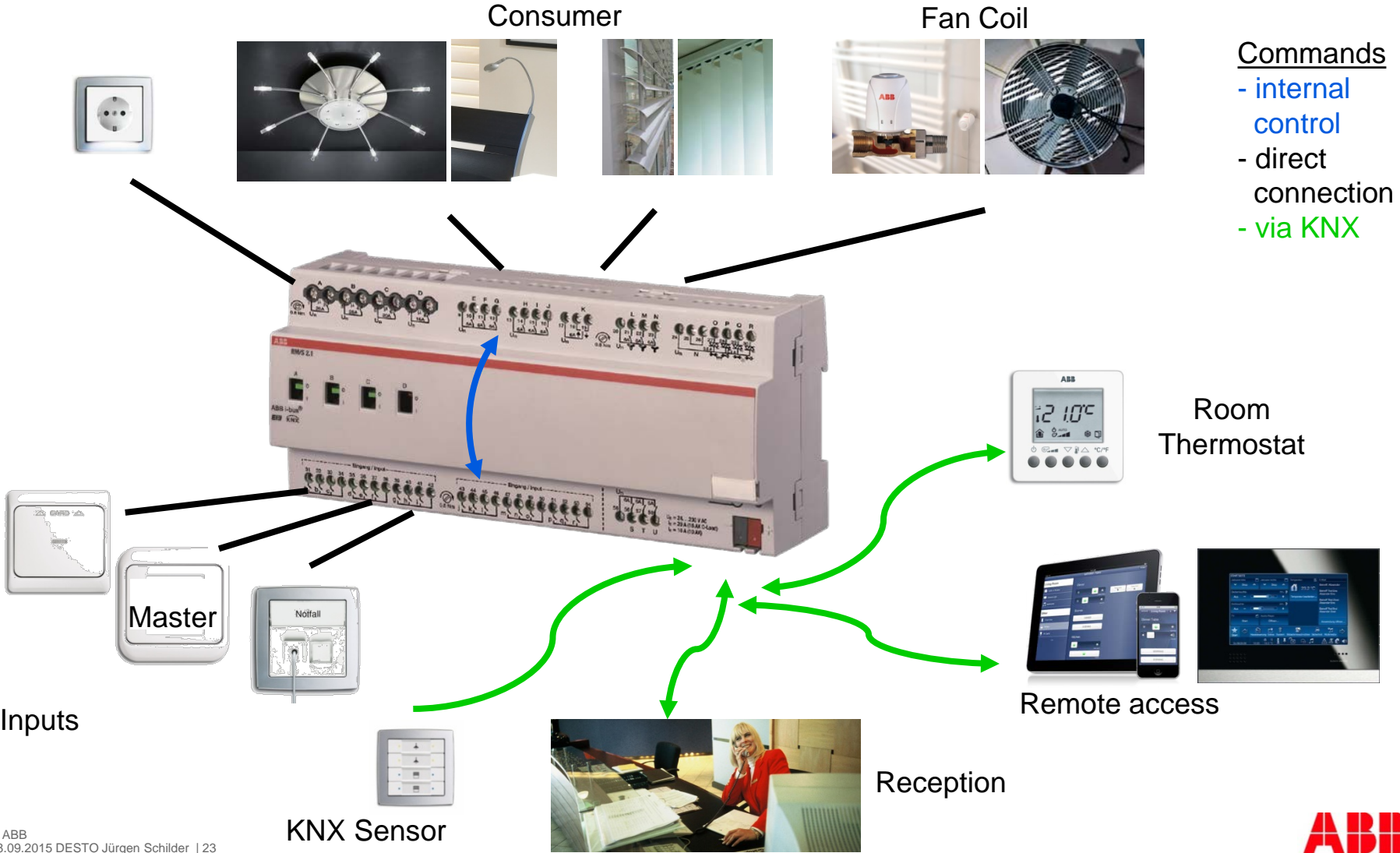


- Room Master RM/S
 - The Room Master is the complete solution for the demands of electrical installations in hotel rooms and apartments



Webinar “Room Automation with KNX”

Room Master – Overview



Consumer

Fan Coil

- Commands
- internal control
 - direct connection
 - via KNX

Room Thermostat

Remote access

Reception

KNX Sensor

Master

Inputs



Webinar “Room Automation with KNX”

Room Master RM/S

Room Solutions – Application and Functions



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

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

Outputs

Shutter/
Blinds

Fan

Valves

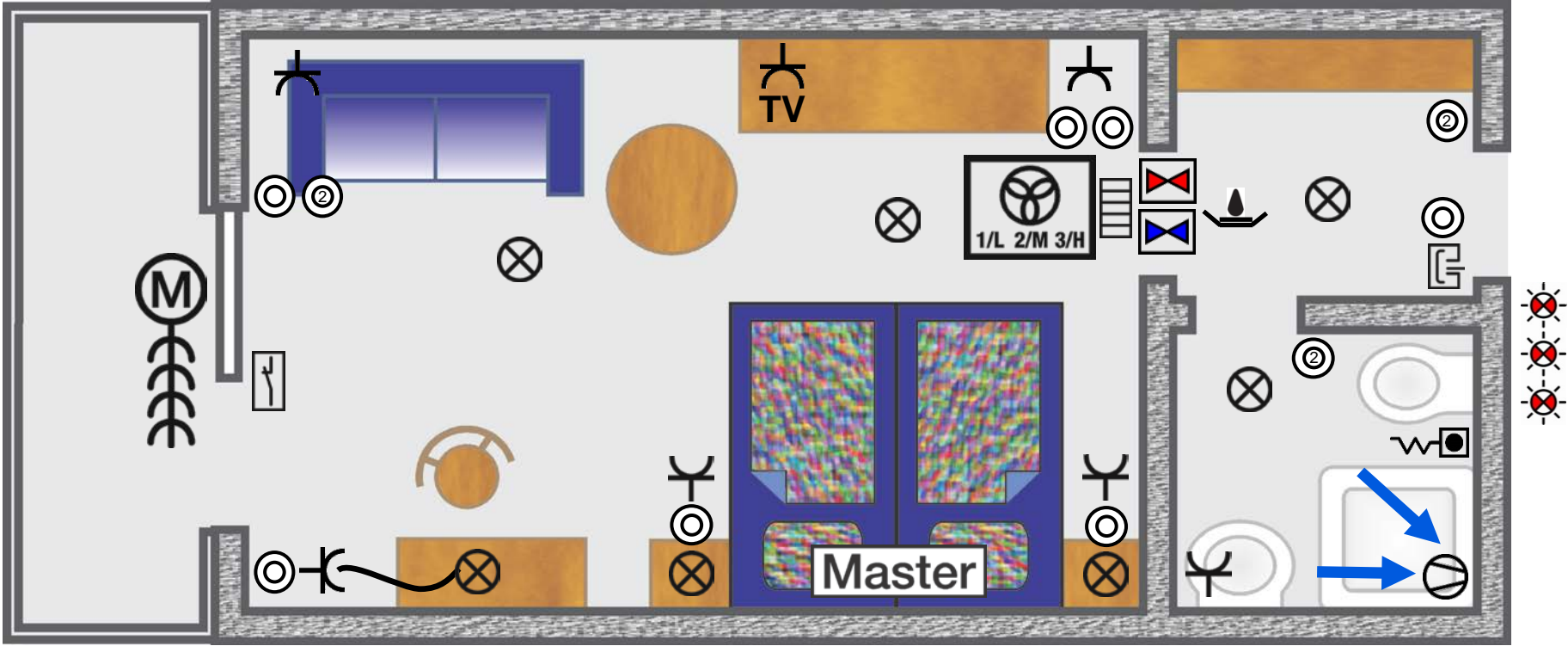


Inputs

Outputs

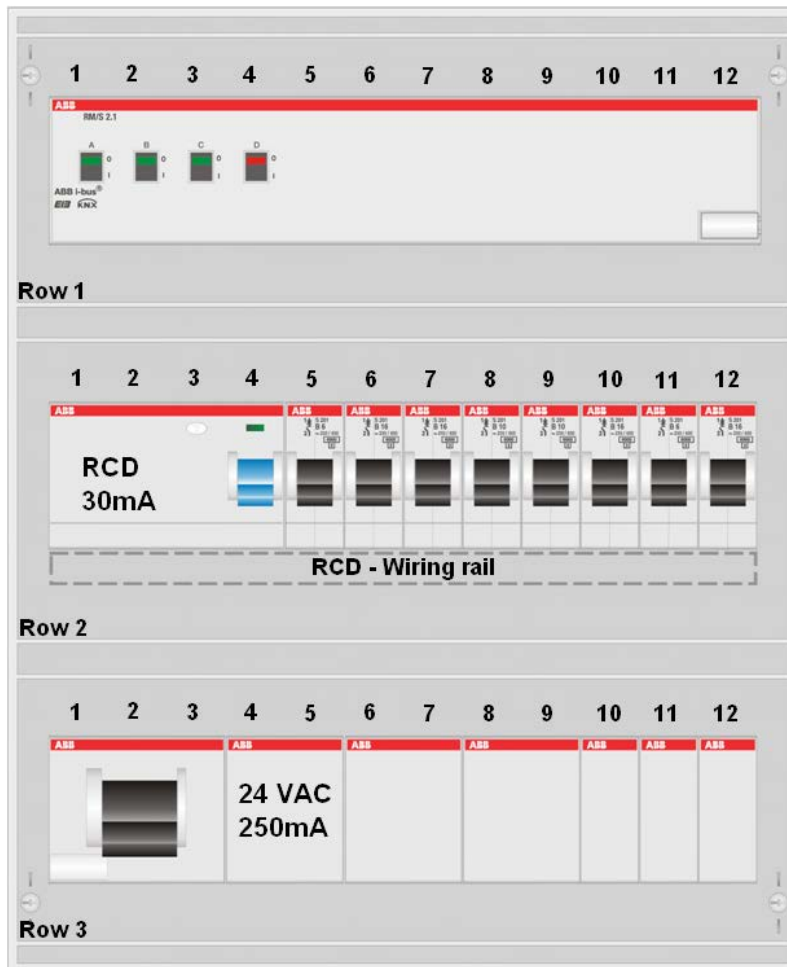
Webinar “Room Automation with KNX”

Room Master Premium RM/S 2.1



Webinar “Room Automation with KNX”

Room Master Premium RM/S 2.1

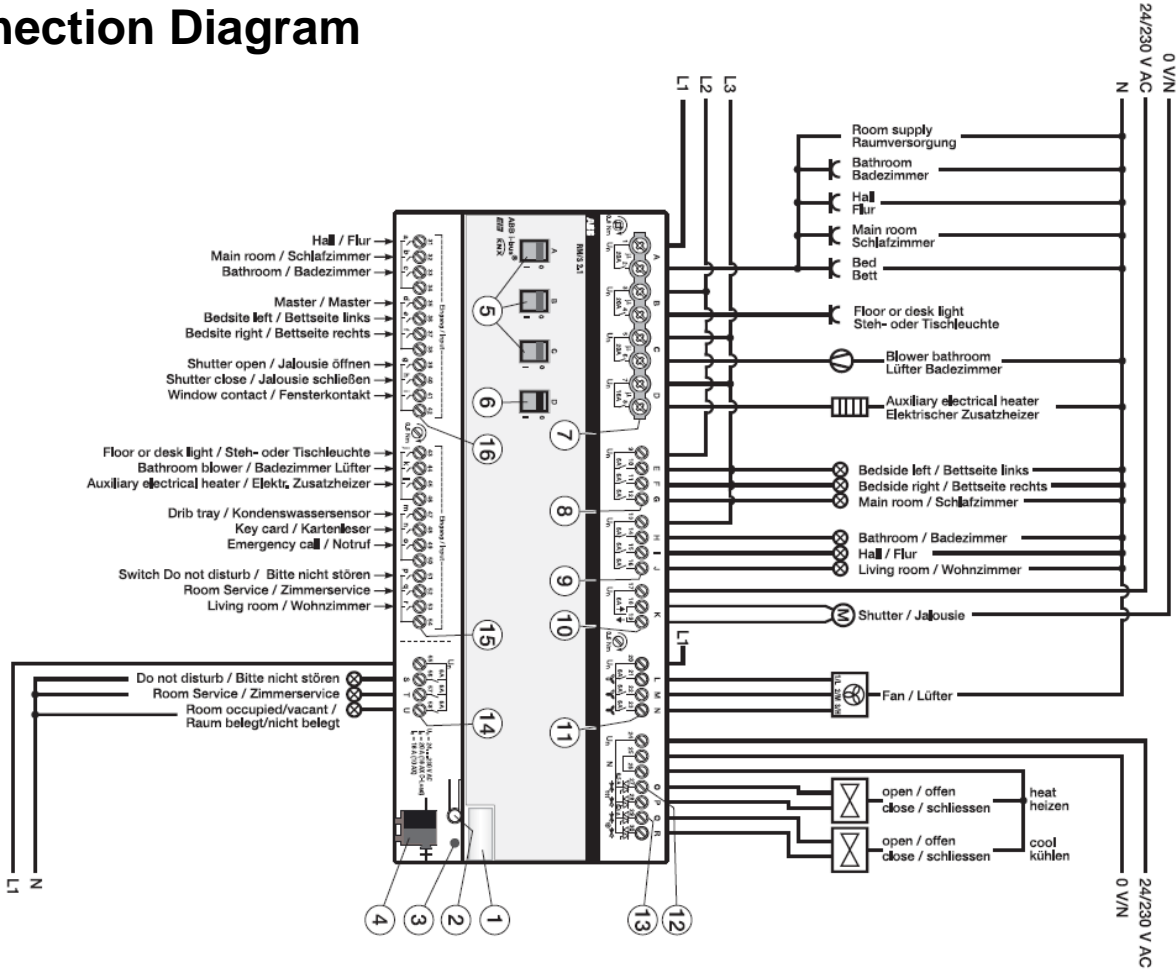


- Row 1:
 - 1 - 12 Room Master
- Row 2:
 - 1 - 4 RCD
 - 5 (6A) Main Supply (Bell Transformer)
 - 6 (16A) Socket Outlet Circuit
 - 7 (16A) Socket Outlet Circuit
 - 8 (10A) Electrical. Heater / Auxiliary Contact
 - 9 (10A) Lighting Circuit + Shutter
 - 10 (16A) Room supply
 - 11 (6A) Fan Coil (HVAC)
 -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

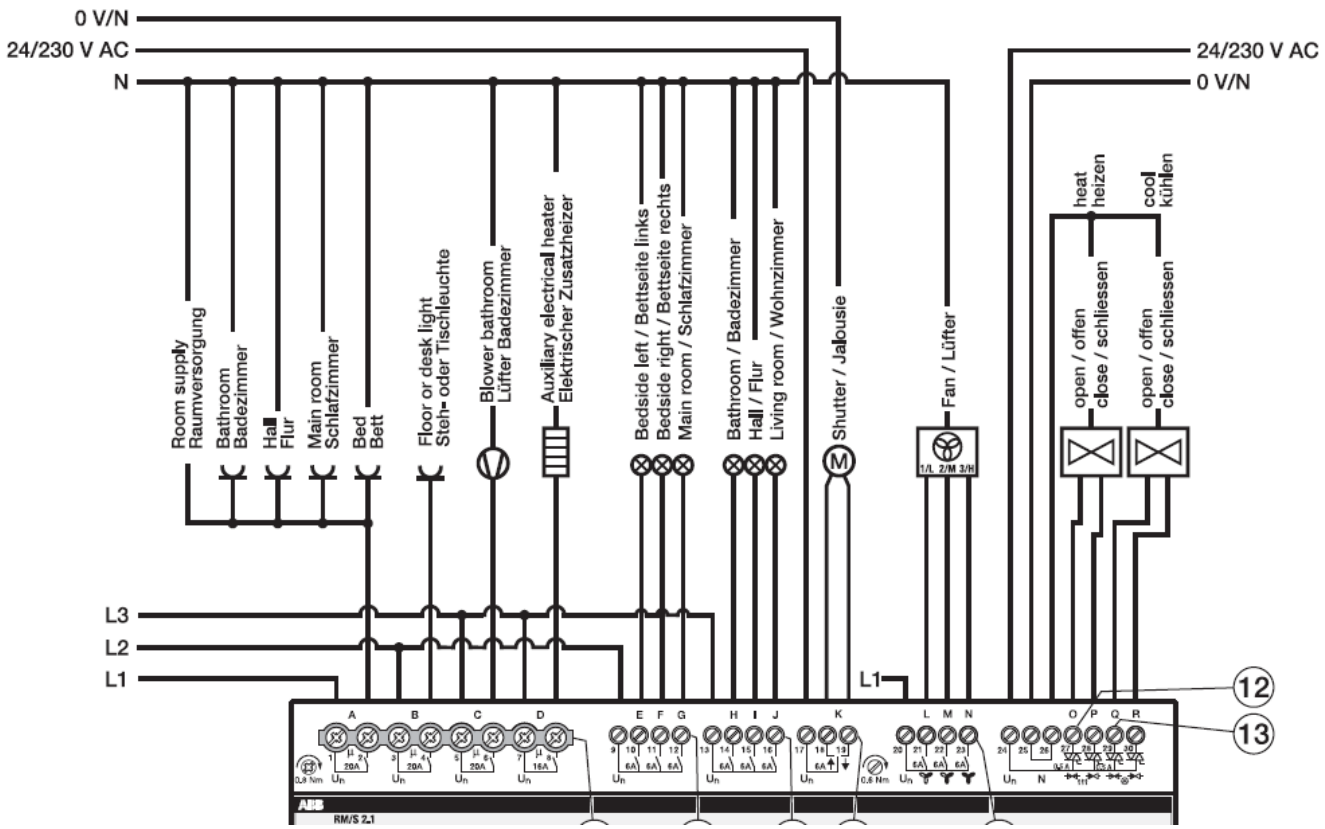
Connection Diagram



Webinar “Room Automation with KNX”

Room Master Premium RM/S 2.1

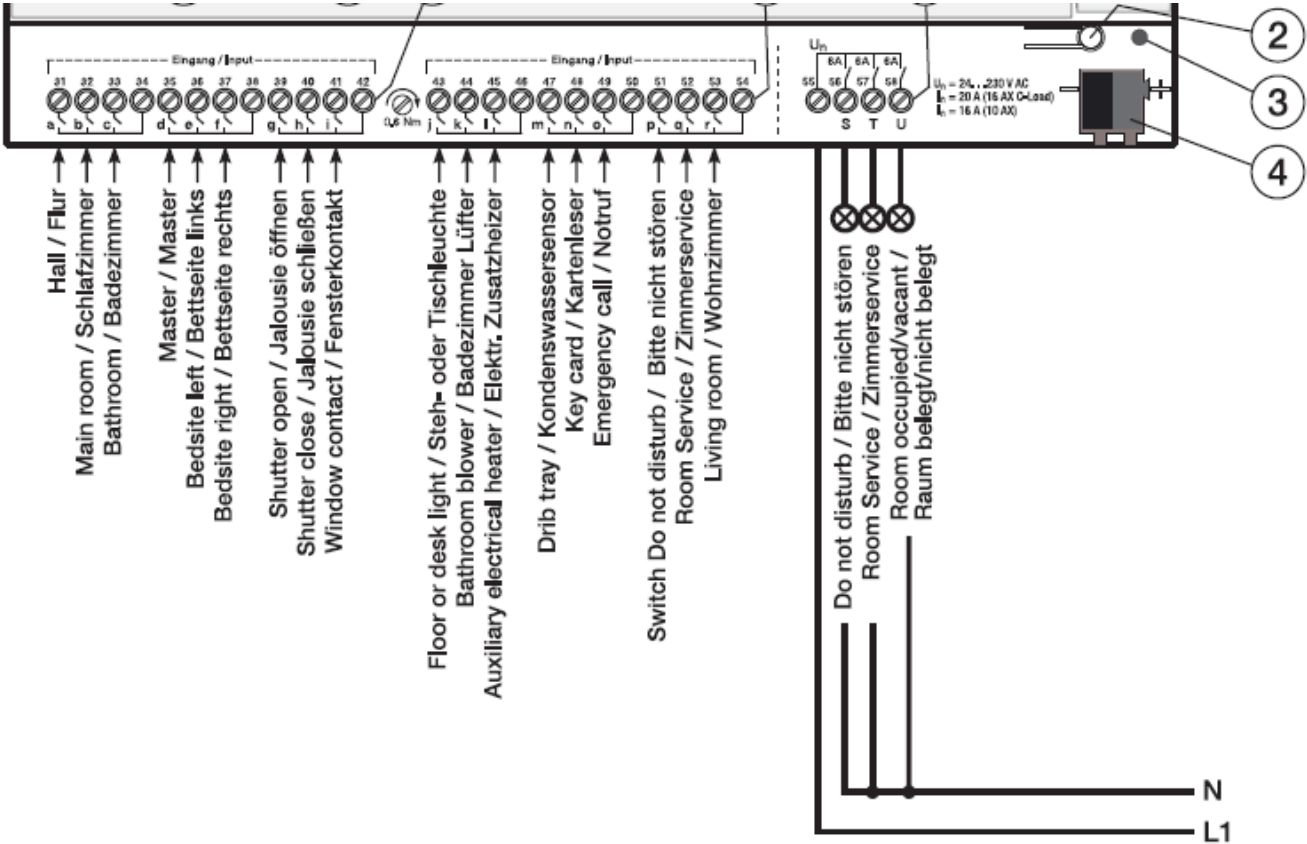
Connection Diagram: Outputs



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

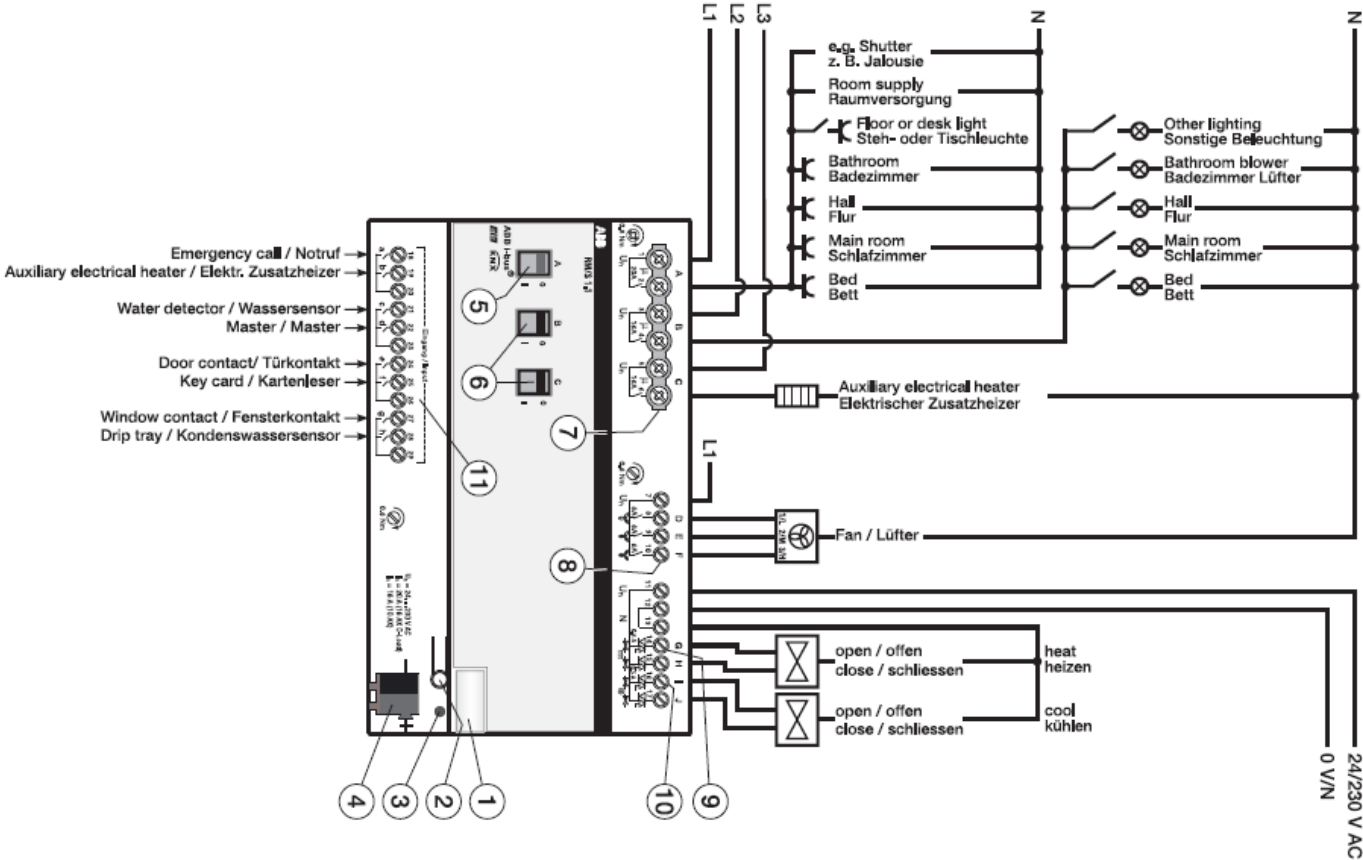


Inputs

Webinar “Room Automation with KNX”

Room Master Basic RM/S 1.1

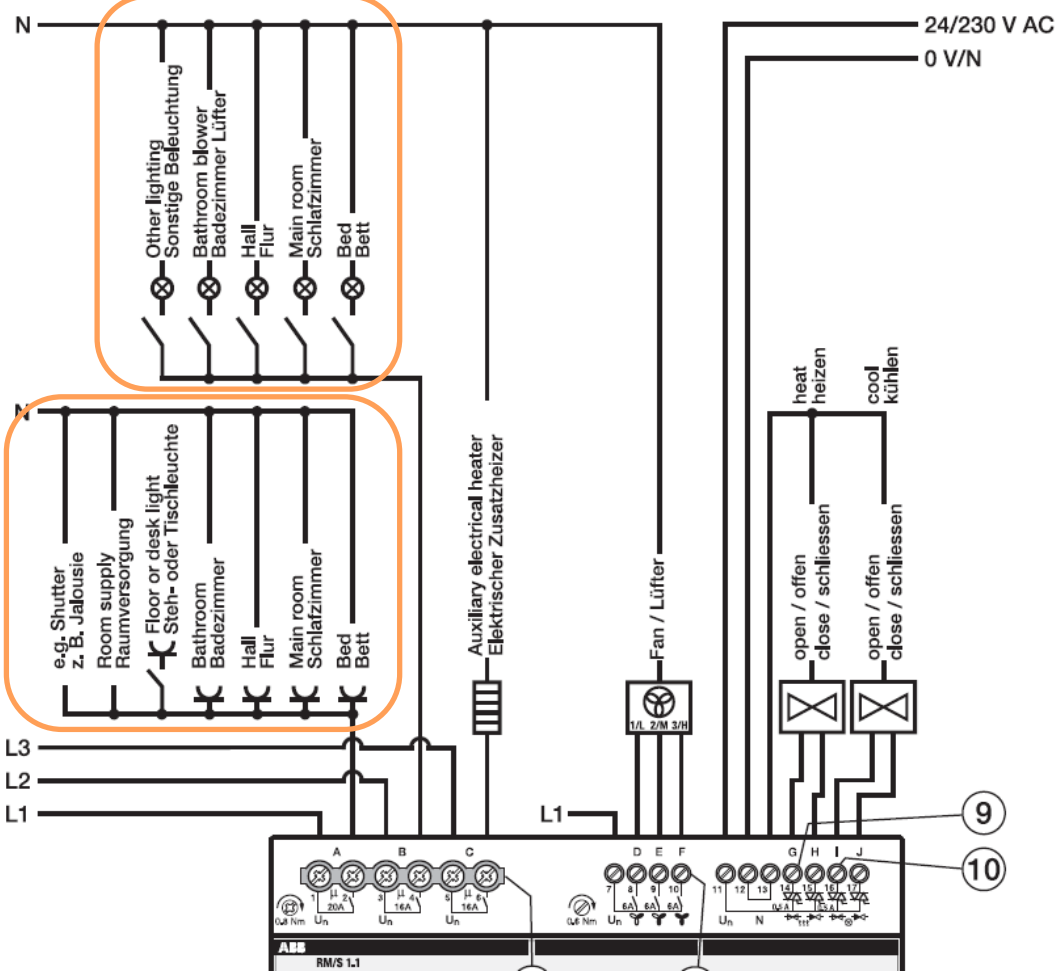
Connection Diagram:



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Room Master Basic RM/S 1.1

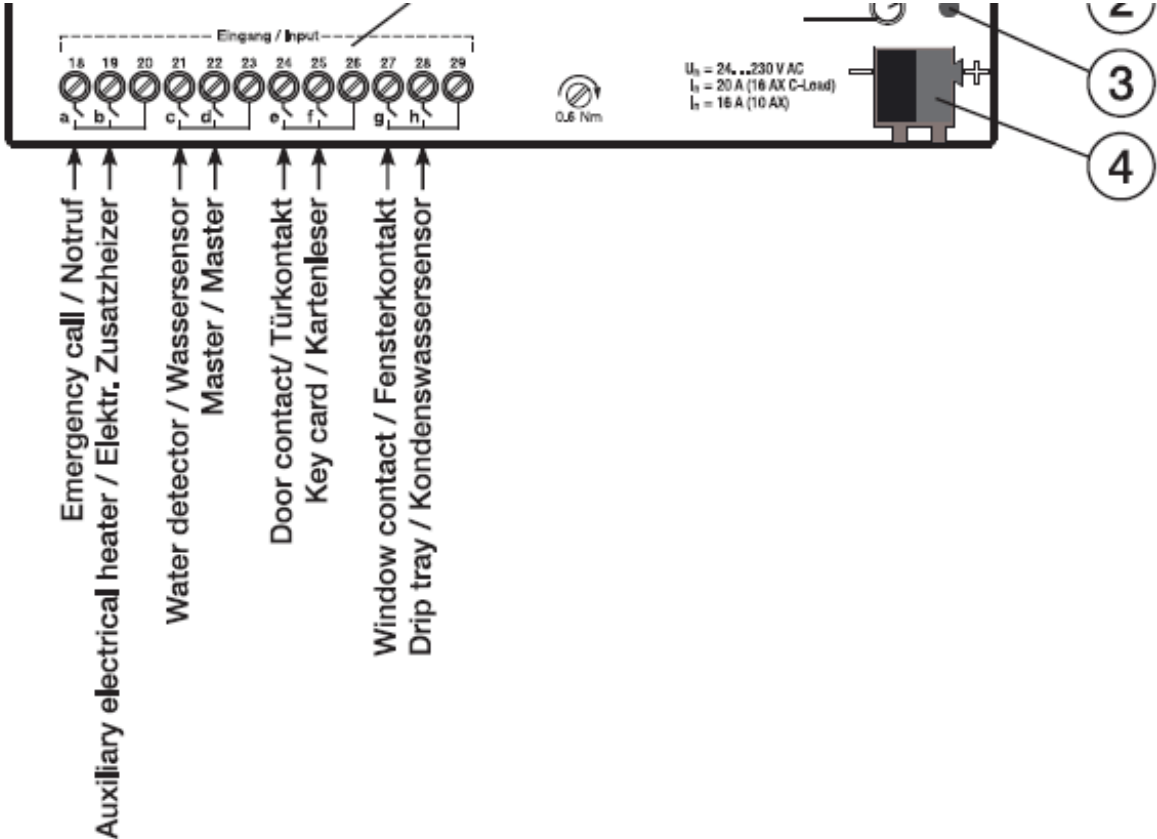
Connection Diagram: Outputs



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:

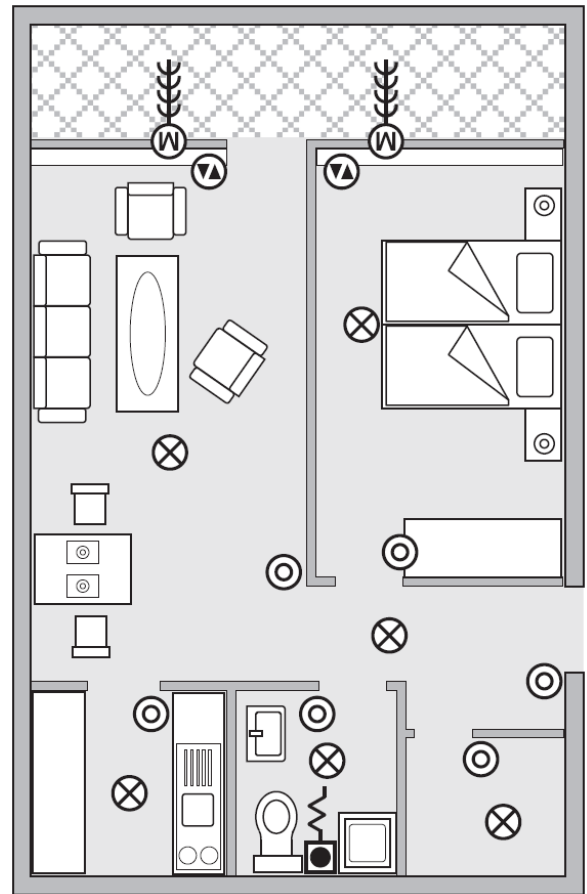
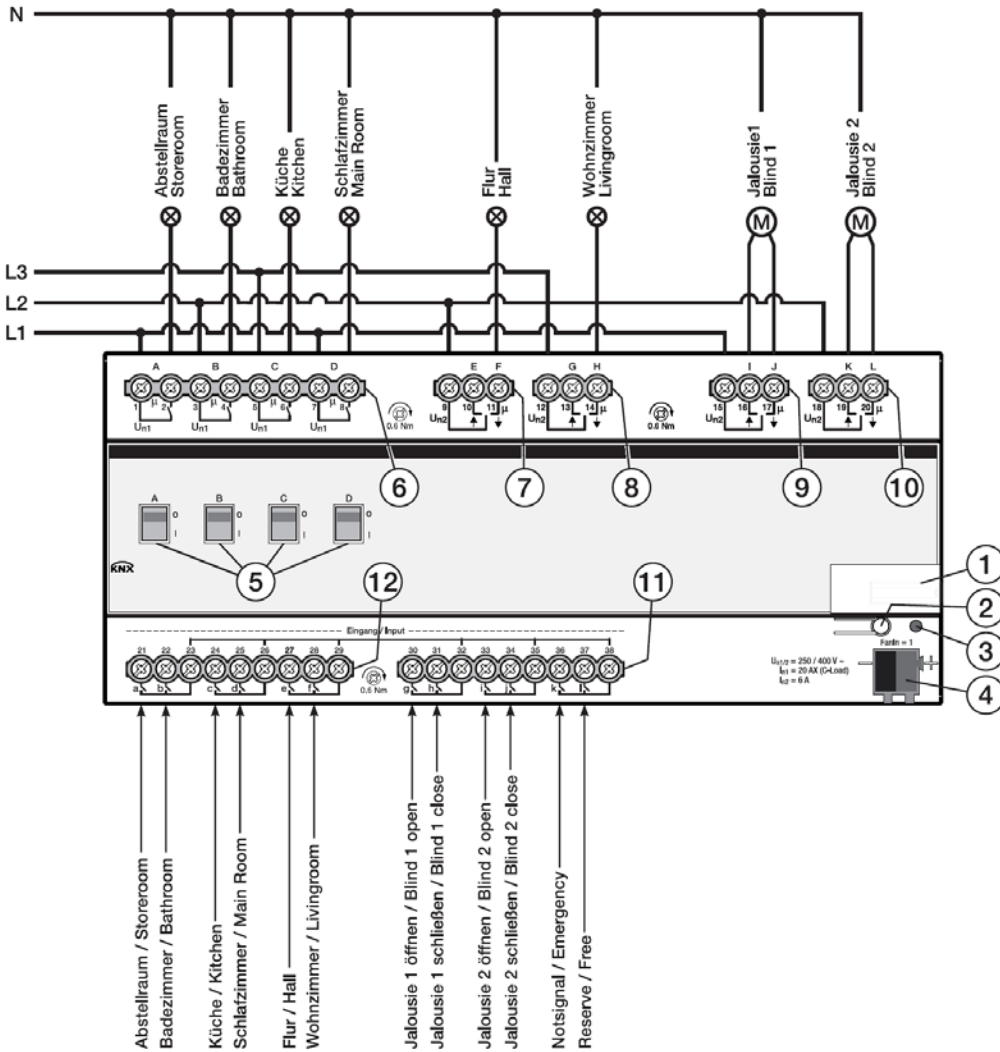
- Basis „Room Masters, Premium“
- Full functionality
- Internal links possible (input to output)
- Room scenarios

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

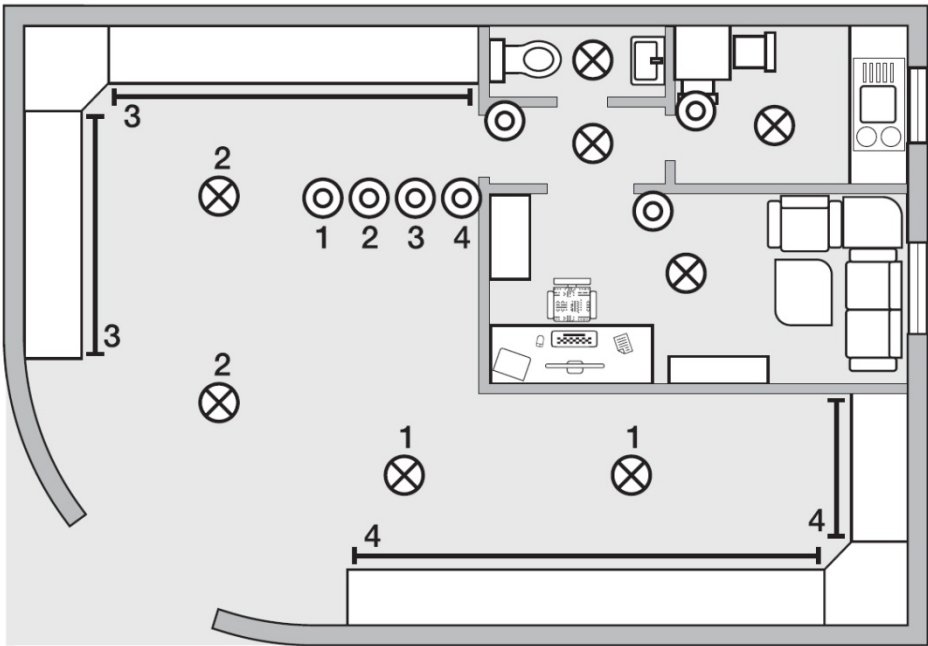
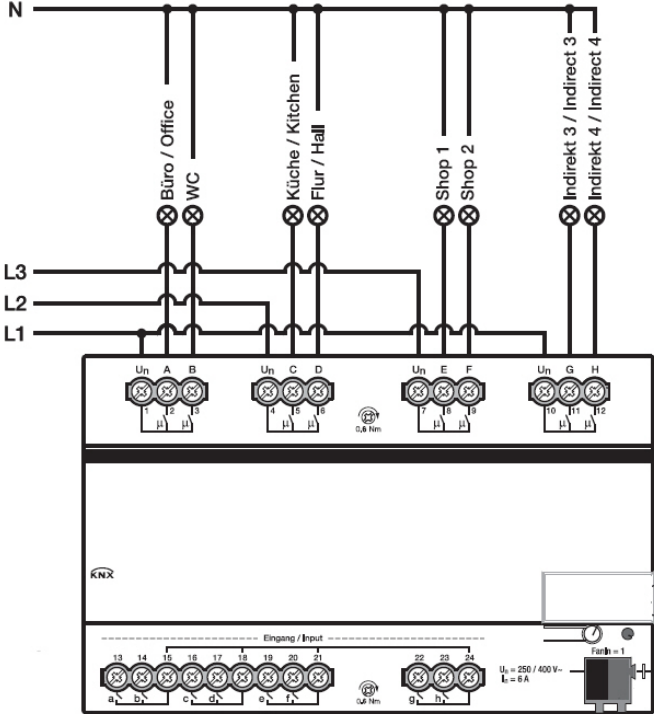
- 8 x switching outputs 6 A
- 8 x binary inputs contact scanning

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

Device: 1.5.5 RM/S 3.1 Room Master,MDRC

General	Input a	Input b	Input c
<ul style="list-style-type: none">Enable inputs a...fEnable inputs g...lEnable outputs A...DEnable outputs E...LEnable Room Scenarios 1...16	<p>(binary input, contact scanning)</p> <p>Description (40 characters)</p> <p>Enable internal blocking</p>	<p>(binary input, contact scanning)</p> <p>Description (40 characters)</p> <p>Enable internal blocking</p>	<p>(binary input, contact scanning)</p> <p>Description (40 characters)</p> <p>Enable internal blocking</p>
	<p>Disable</p> <p>Disable</p> <p>Switch sensor</p> <p>Switch/dimming sensor</p> <p>Blind sensor</p> <p>Value / forced operation</p>	<p>Disable</p>	<p>Disable</p>

Webinar “Room Automation with KNX”

Room Master RM/S 3.1 and RM/S 4.1



ETS Parameter – input

Device: 1.5.5 RM/S 3.1 Room Master,MDRC

General	Debounce time	50 ms
Enable inputs a...f	Distinction between short and long operation	no
a: Switch sensor	Opening the contacts => Event 0? Closing the contacts => Event 1	<--- NOTE
Enable inputs g...l	Activate minimum signal duration	no
Enable outputs A...D	Scan input after download, ETS reset and bus voltage recovery	no
Enable outputs E...L	Enable communication objects:	
Enable Room Scenarios 1...16	"Block" 1 bit	no
	"Start event 0/1" 1 bit	no
	"Switch 1" (cyclic sending possible)	yes
	Reaction on event 0	TOGGLE
	Reaction on event 1	no reaction
	Internal connection	no
	Cyclic sending	no
	"Switch 2"	no
	"Switch 3"	no



Webinar “Room Automation with KNX”

Room Master RM/S 3.1 and RM/S 4.1



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

Webinar “Room Automation with KNX”

Room Master RM/S 3.1 and RM/S 4.1



ETS Parameter – output A...D

Device: 1.5.5 RM/S 3.1 Room Master,MDRC

General	Reaction of output	N/O
Enable inputs a...f	Contact position on bus voltage failure	Unchanged
a: Switch sensor	Object value "Switch" on bus voltage recovery	not write
Enable inputs g...l	Enable function time	no
Enable outputs A...D	Enable function scene	no
A: Output (20 AX C-Load)	Enable function logic	no
Enable outputs E...L	Enable function forced operation	no
Enable Room Scenarios 1...16	Enable communication object "Status Switch" 1 bit	yes
	Send object value	after a change
	Object value of contact position	1 = closed, 0 = opened

Webinar “Room Automation with KNX”

Room Master RM/S 3.1



ETS Parameter – output E...L

Device: 1.5.5 RM/S 3.1 Room Master,MDRC

General Enable inputs a...f a: Switch sensor Enable inputs g...l Enable outputs A...D A: Output (20 AX C-Load) Enable outputs E...L EF: Blind (6 A) - Drive Enable Room Scenarios 1...16	Output E, F (6 A) (with switch actuator E only) Description (40 characters)	Blind Disable Switch actuator Blind Shutter
	Output G, H (6 A) (with switch actuator G only) Description (40 characters)	Disable
	Output I, J (6 A) (with switch actuator I only) Description (40 characters)	Disable
	Output K, L (6 A) (with switch actuator K only) Description (40 characters)	Disable

Webinar “Room Automation with KNX”

Room Master RM/S 3.1 and RM/S 4.1



RM/S 3.1



RM/S 4.1

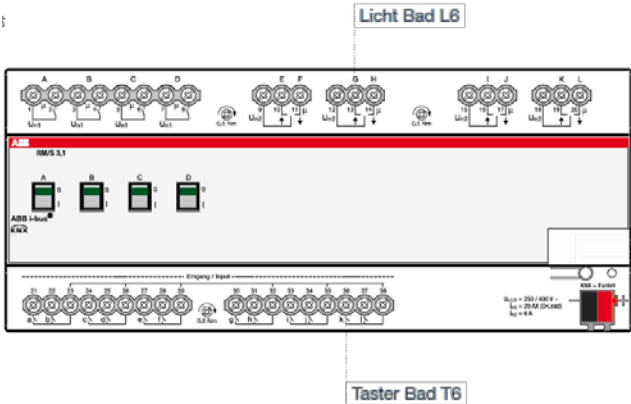
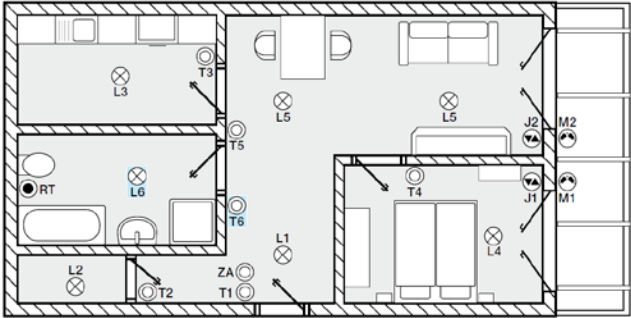
Preconfigured ETS projects as a new service

- 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

Webinar “Room Automation with KNX”

Room Master RM/S 3.1

Preconfigured ETS application: Retirement appartement



Predefined functionality



Interne Verknüpfungs-funktion	Schalten								Motorsteuerung				Optionale Funktionserweiterung über KNX Netzwerk
	A	B	C	D	E	F	G	H	I	J	K	L	
Eingang	a								AUF / Absteig				
	b									AB / Aufsteig			
	c										AUF / Absteig		
	d											AB / Aufsteig	
	e	Alle AUS	Alle AUS	Alle AUS	Alle AUS	Alle AUS		Alle AUS					
	f	12V											
	g	AUS											
	h		12V										
	i			12V									
	j				12V								
k					12V								
l						12V						WC Notruf	
Optionale Funktionserweiterung über KNX Netzwerk													

ABB i-bus® KNX Raum Master RM/S 3.1

Anwendungsbeispiel Hotelzimmer

In diesem Anwendungsbereich wird der Raum Master RM/S 3.1 in einem Mehrfamilienhaus eingesetzt. Folgende Funktionen sind realisiert:

- Die Raumsteuerung mit 3 Leuchten/Leuchtleisten
- Die Akustiksteuerung von einer Steckdose
- Die Akustiksteuerung von 2 Akustiklautsprechern
- Die Steuerung von 4 Einzelventilator-Steckdosen
- Die Steuerung von einem Raumnotruf-Schalter mit Zerstörerempfang

Optionale Funktionserweiterungen über KNX Netzwerk

- Steuerung über ein Dimmer
- Steuerung von einem Notrufschalter mit Zerstörerempfang
- Ausdrückendes Aufstehen bei der Erleuchtung eines WMO-Signals

Weitere Informationen finden Sie unter: www.abb.com/etn

Interne Verknüpfung der Ein- und Ausgänge

Beispiel: Schalten der Steckdose S1 mit dem Taster T3

Interne Verknüpfung	A	B	C	D	E	F	G	H	I	J	K	L	WC Notruf
S1													
T3													



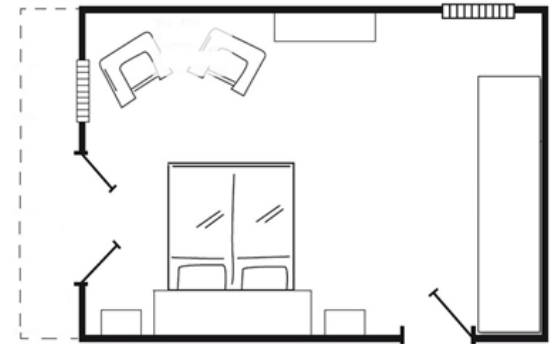
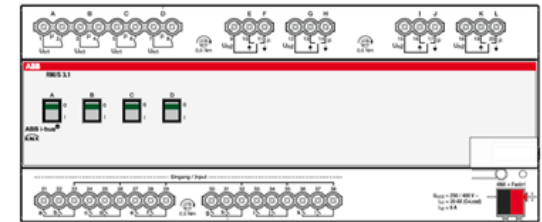
Webinar “Room Automation with KNX”

Room Master RM/S 3.1 Planning Template (Word/PDF)



Room planning Room Master 3.1 – Demo case

Input	Terminal	Function
a	21,23	Room light ON/OFF
b	22,23	Light wardrobe ON/OFF
c	24,26	Light reading corner ON/OFF
d	25,26	Socket outlet balcony ON/OFF
e	27,29	Light balcony ON/OFF
f	28,29	Central OFF (Light and socket outlet balcony)
g	30,32	Shutter door balcony UP
h	31,32	Shutter door balcony DOWN
i	33,35	Shutter balcony UP
j	34,35	Shutter balcony DOWN
k	36,38	Shutter street UP
l	37,38	Shutter street DOWN
Output		
A	1,2	Room light
B	3,4	Light wardrobe
C	5,6	Light reading corner
D	7,8	Socket outlet balcony
E (Up Switch)	9,10	Light balcony
F (Down -)	9,11	
G (Up Switch)	12,13	Shutter door balcony
H (Down -)	12,14	
I (Up Switch)	15,16	Shutter balcony
J (Down -)	15,17	
K (Up Switch)	18,19	Shutter street
L (Down -)	18,20	



Webinar “Room Automation with KNX”

Room Master RM/S 3.1 Planning Template (Word/PDF)



Room planning Room Master 3.1 – Demo case

Internal linis		Switch energy				Control shutter/blinds or switch energy								Optional functional expansion via KNX				
		A	B	C	D	E	F	G	H	I	J	K	L					
Input	a	X																
	b		X															
	c			X														
	d				X													
	e					X												
	f	IS1*	IS1*	IS1*	IS1*	IS1*												
	g							UP										
	h								Down									
	i									UP								
	j										Down							
	k											UP						
l												Down						
Optional functional expansion via KNX																		

*Internal scene 1 via room scenario 1

Webinar “Room Automation with KNX”

Room Master RM/S 3.1

Connections

Consumer

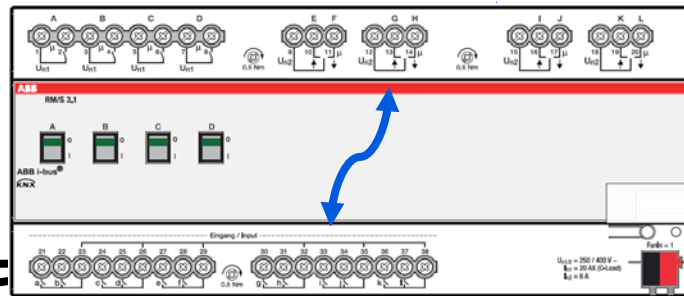
Shutter, Blinds, Curtains

Sockets



Commands

- internal control
- direct connection
- via KNX



Inputs



KNX Sensor



Remote access



Webinar “Room Automation with KNX”

Room Master

- Concept of Programming
- Controlling Scenes
- Room Scenario



RM/S 1.1



RM/S 2.1



RM/S 3.1



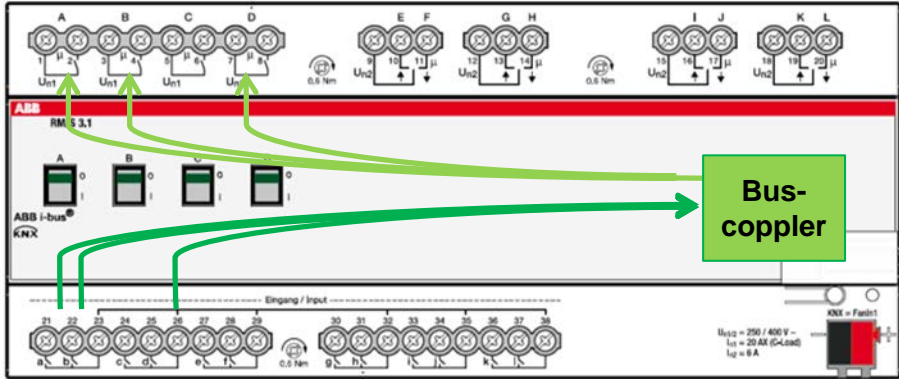
RM/S 4.1



Webinar “Room Automation with KNX”

Room Master – Concept of Programming

Normal KNX programming with group addresses



Group addresses

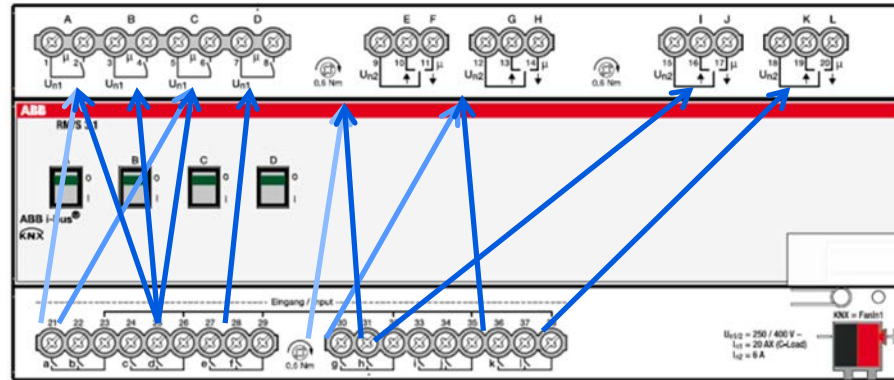


Webinar “Room Automation with KNX”

Room Master – Concept of Programming

NEW Internal Connections

- Like internal wiring
- Works without group addresses
- Adjustable via ETS Parameters
- Works additionally to the normal KNX programming with group addresses



SV/S

KNX

Webinar “Room Automation with KNX”

Room Master – Concept of Programming



ETS Parameter – internal connection

Device: 1.5.5 RM/S 3.1 Room Master,MDRC

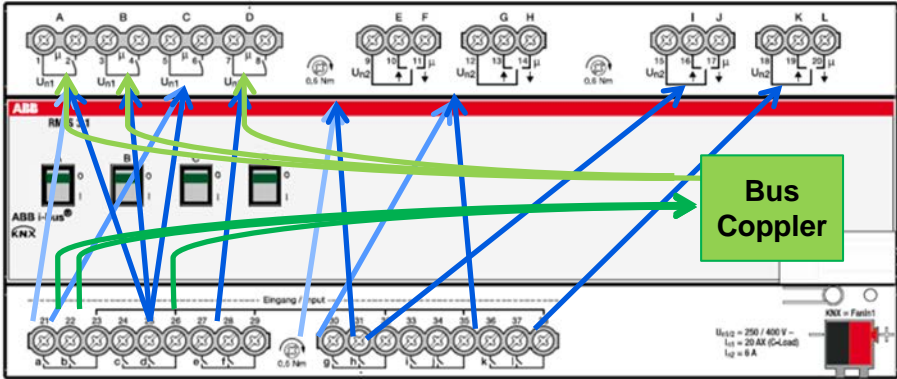
General	Enable communication object "Block" 1 bit	no
Enable inputs a...f	Debounce time	50 ms
a: Switch sensor	Connected contact type	normally open
b: Blind sensor	Internal connection with blind output	no no EF GH IJ KL ← NOTE
Enable inputs g...l	Operating functionality of blind	
Enable outputs A...D	Short operation: STOP/stepwise	
A: Output (20 AX C-Load)	Long operation: Move UP/DOWN	
Enable outputs E...L	Long operation after...	0.6 s
EF: Blind (6 A)	Reaction on short operation	STOP / slat UP
- Drive	Reaction on long operation	MOVE UP
Enable Room Scenarios 1...16		



Webinar “Room Automation with KNX”

Concept of Programming

Internal connection and normal KNX programming with group addresses



Group addresses



Room Master allows to use both ways of programming in parallel !

Webinar “Room Automation with KNX”

Controlling Scenes

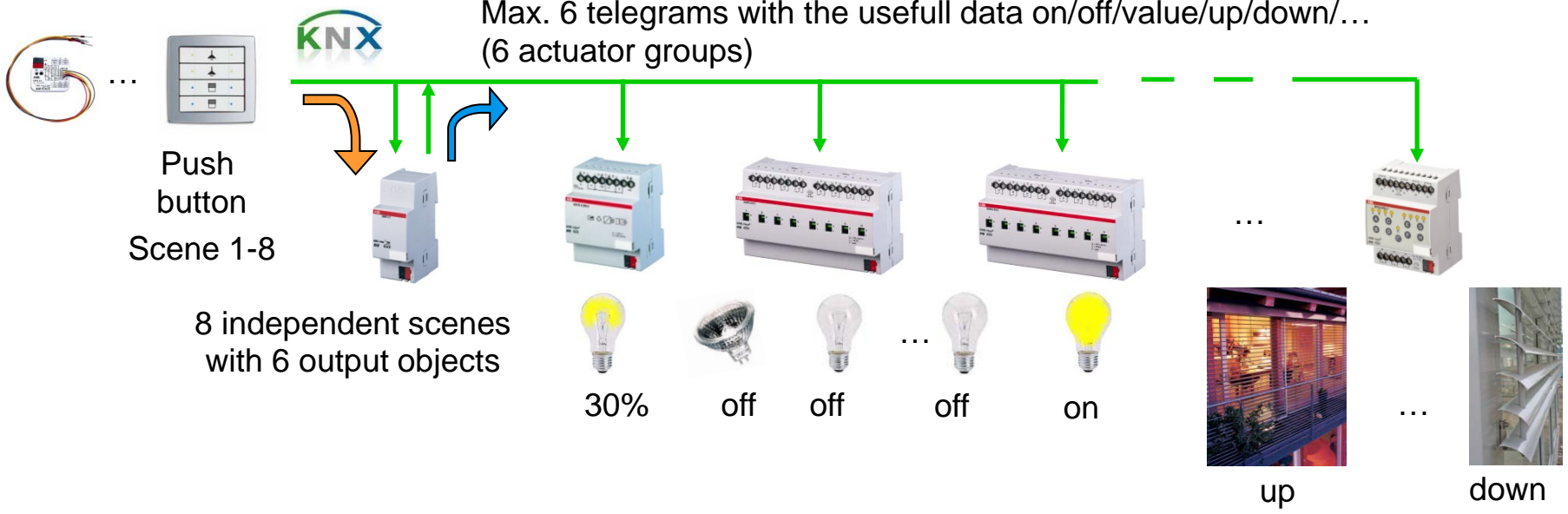
How does it work?

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)

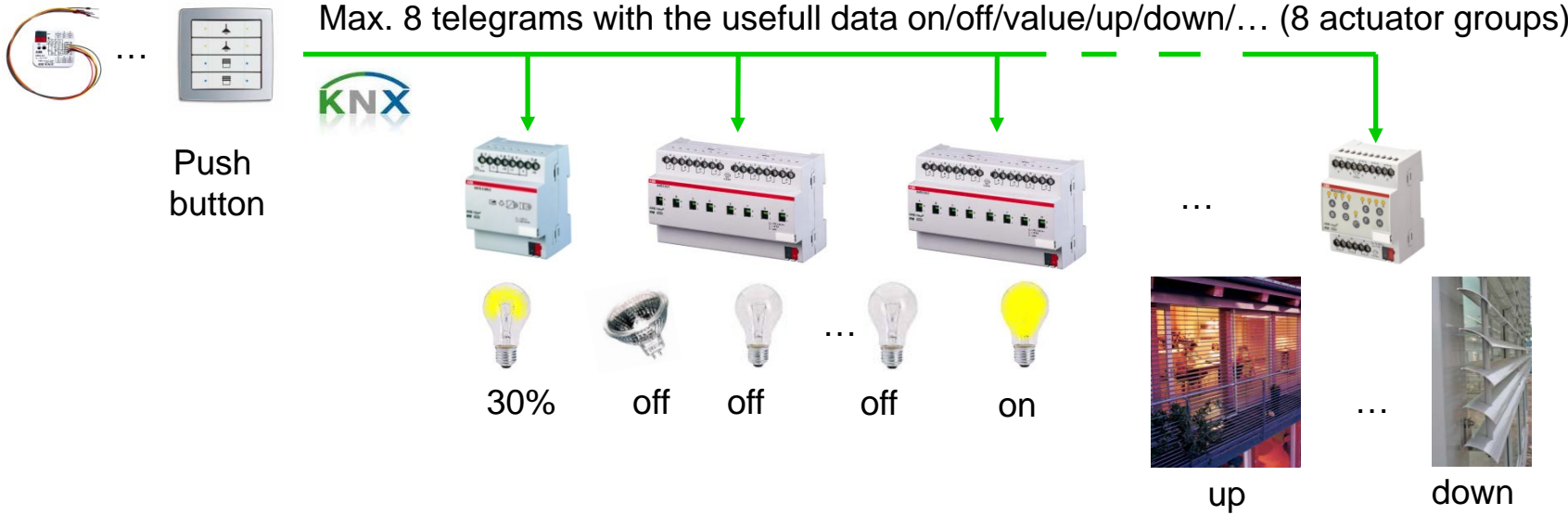
Webinar “Room Automation with KNX”

Controlling Scenes: Store scenes in a “scene controller”



Webinar “Room Automation with KNX”

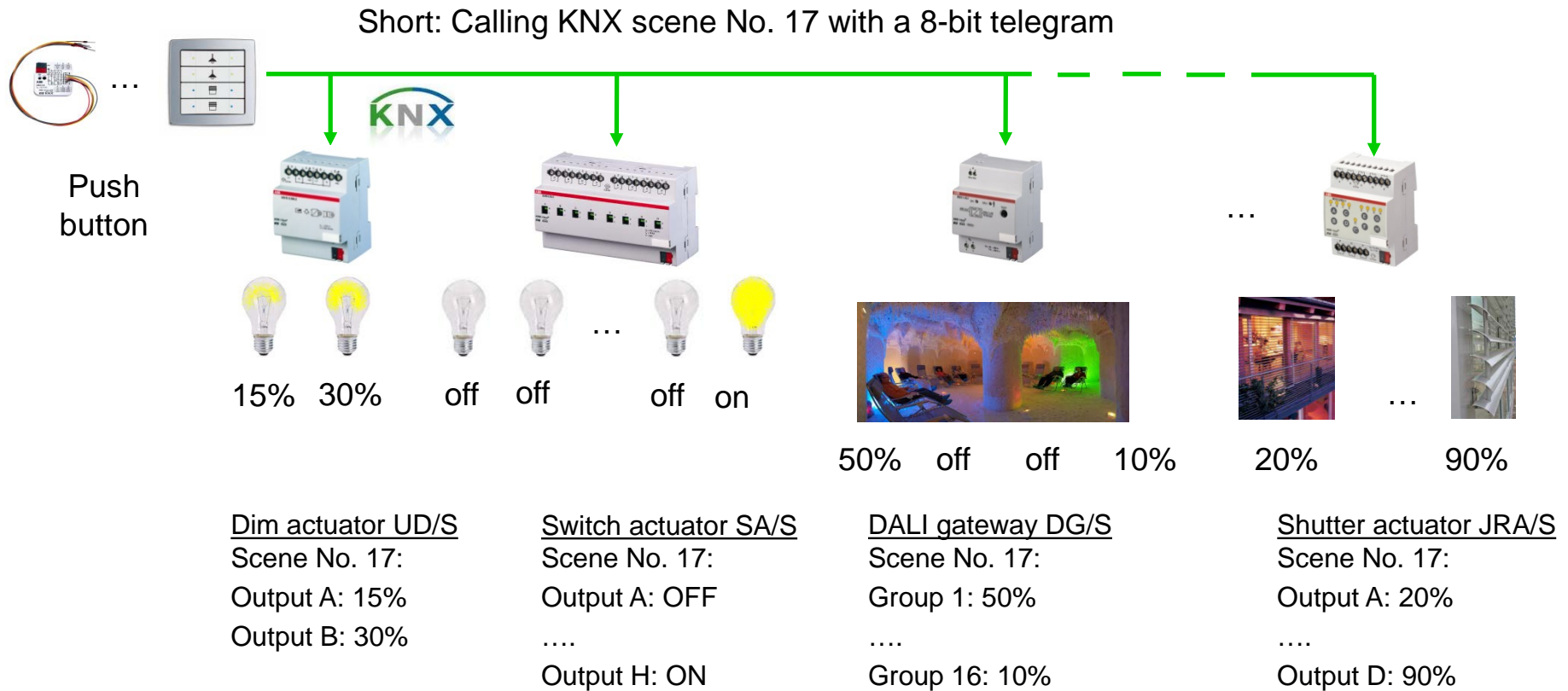
Controlling Scenes: Store scenes in a sensor



- The information (brightness value, up/down) are stored in the pushbutton and send to the devices!
- More bus traffic

Webinar “Room Automation with KNX”

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

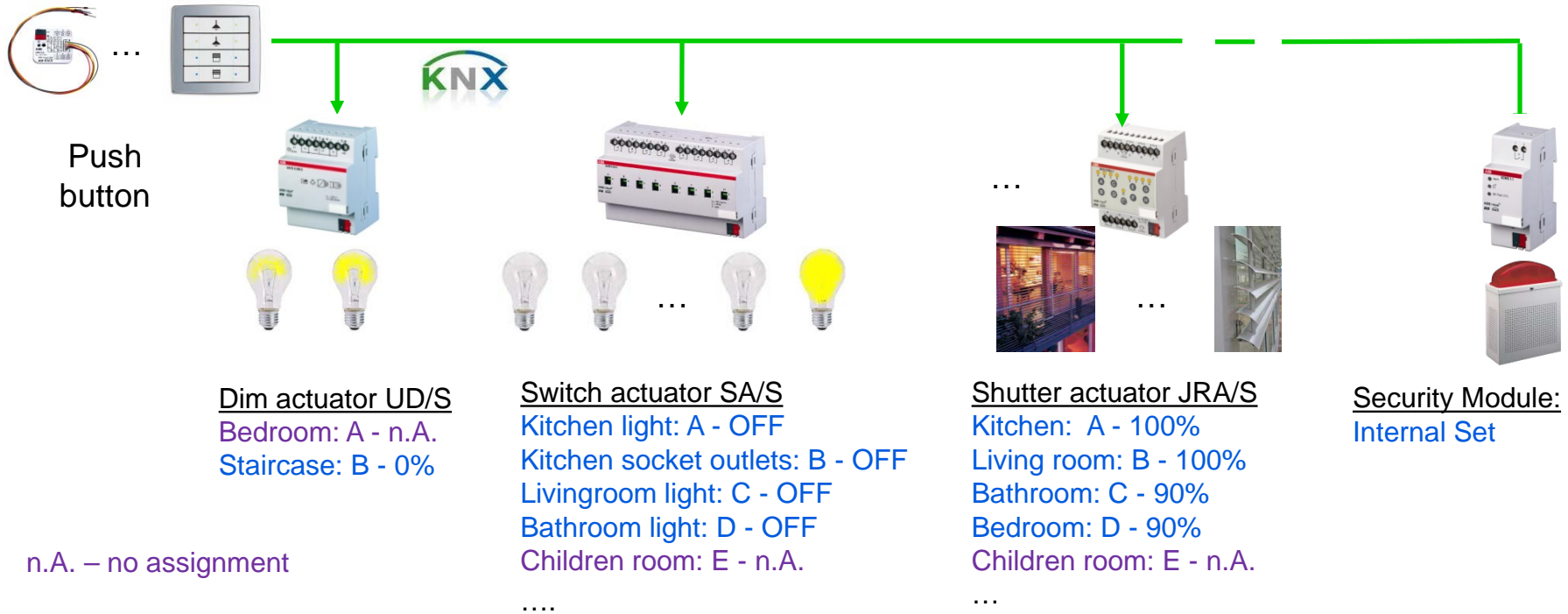


→ All scene devices, such as a channel of the dim actuator, are addressed by the **same group address**

Webinar “Room Automation with KNX”

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

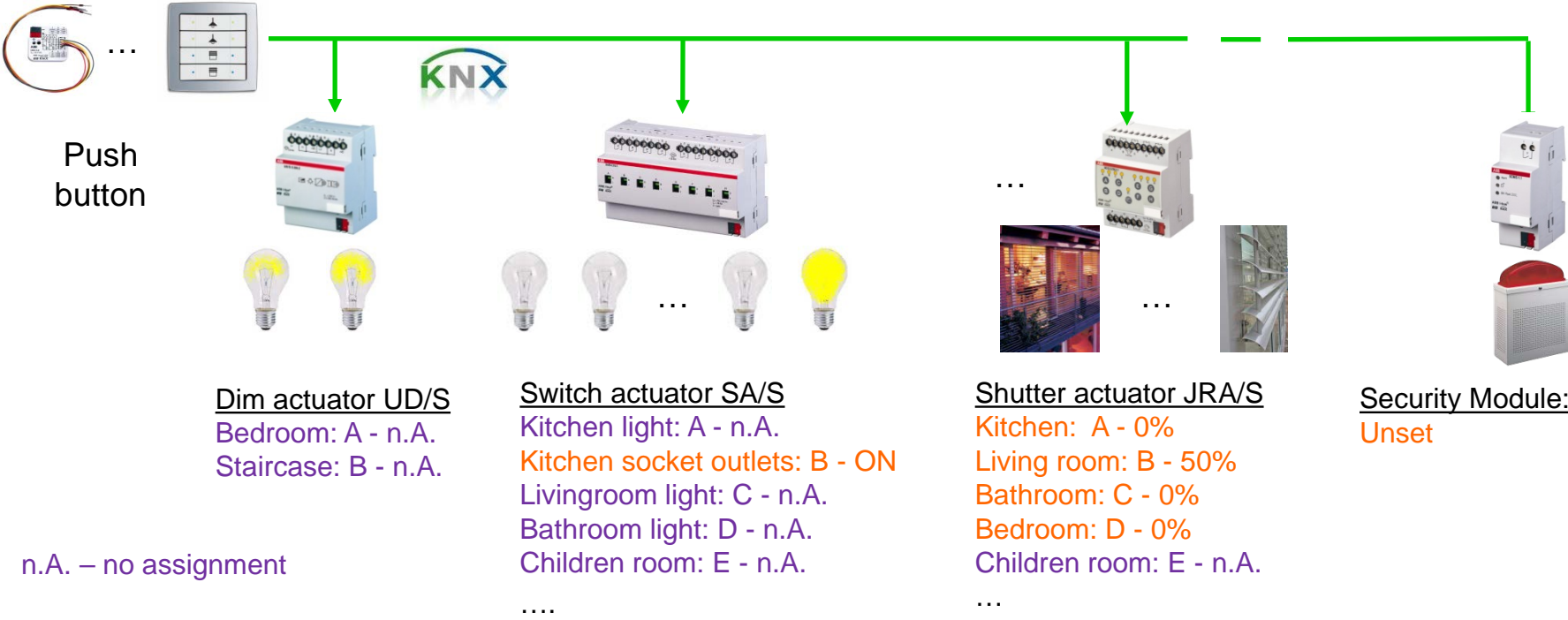
Calling KNX scene No. 4 “Good Night”



Webinar “Room Automation with KNX”

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

Calling KNX scene No. 6 “Good Morning”



Webinar “Room Automation with KNX”

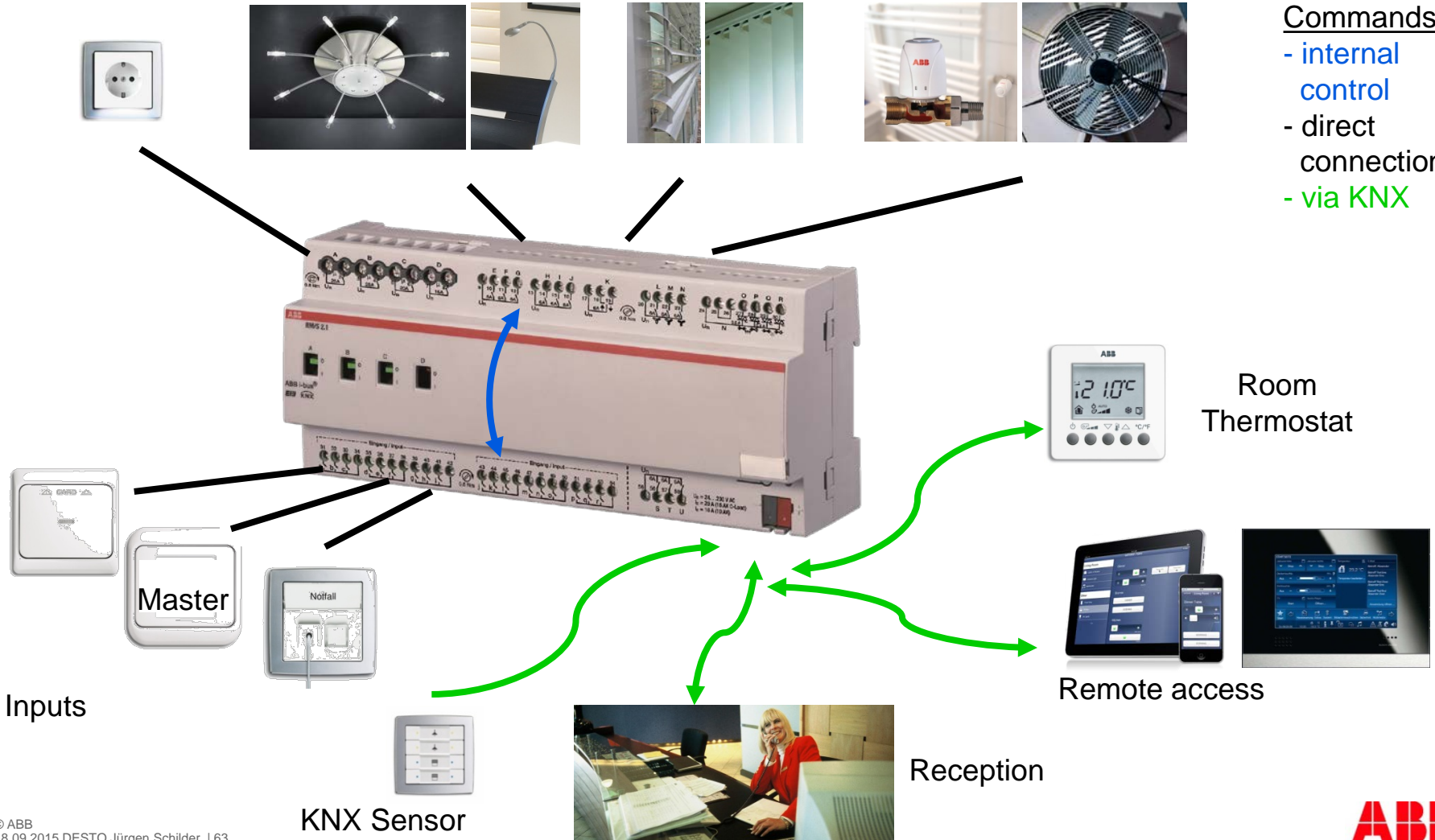
Room Master – Room Scenario and how does it work?

Consumer

Fan Coil

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 be configured whether
 - A KNX 8-bit scene is triggered 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

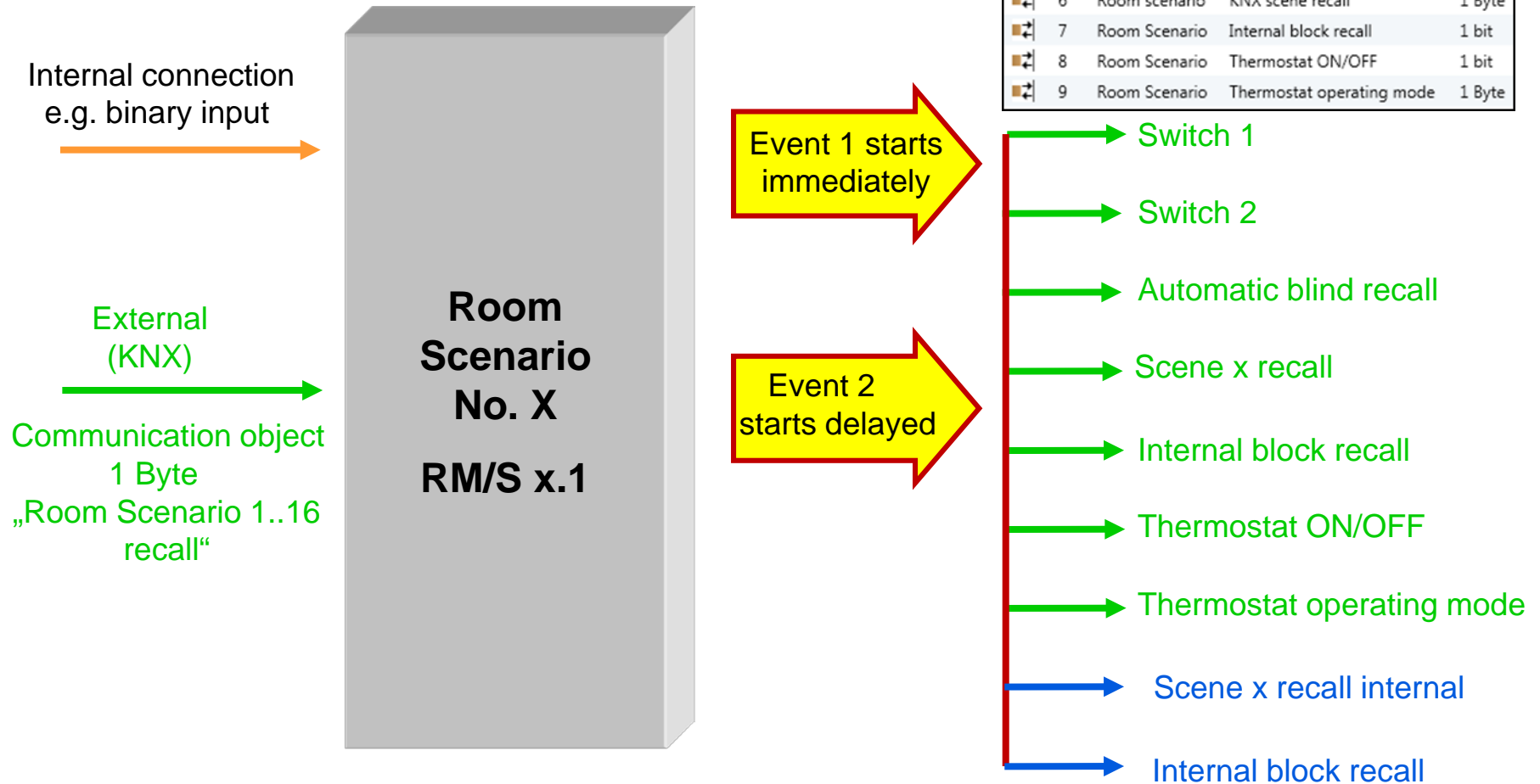
Webinar “Room Automation with KNX”

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”

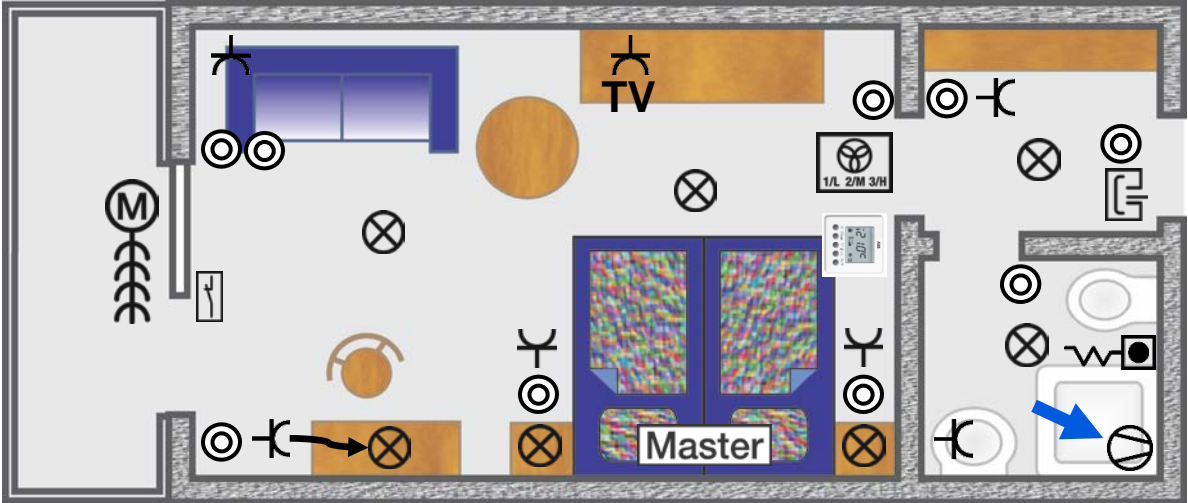
Room Master – Room Scenario



Webinar “Room Automation with KNX”

Room Master – Room Scenario - Floor plan

Hotel Room (1 ½ Room)



- Commands
- internal control
 - direct connection
 - via KNX



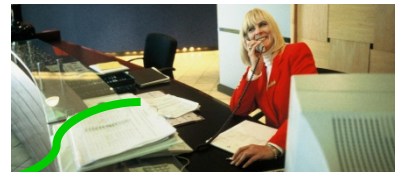
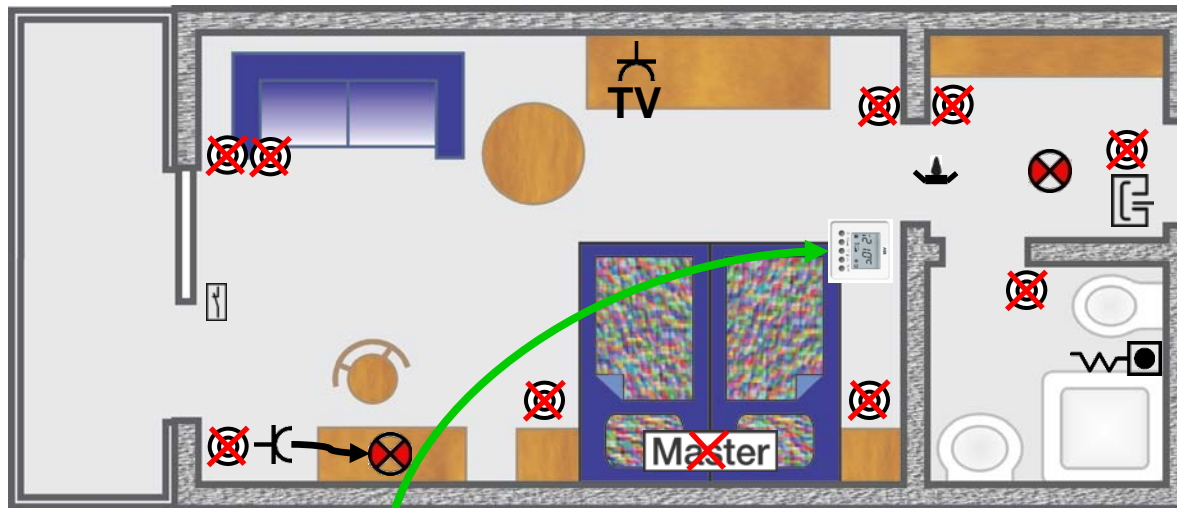
Webinar “Room Automation with KNX”

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

Device: 1.1.5 RM/S2.1 Room Master,Premium,MDRC

Enable Room Scenario 1...16

- Room Scenario 1
- Room Scenario 2
- Room Scenario 3
- Room Scenario 4
- Room Scenario 5
- Room Scenario 6
- Room Scenario 7

Room Scenario enable: yes

Room Scenario 1 and 2: enable

Designation Room Scenario 1 (40 characters): Check In (Welcome scene)

Designation Room Scenario 2 (40 characters): Check Out

2	Room Scenario	1...16 recall	1 Byte
3	Room Scenario	Switch 1	1 bit
4	Room Scenario	Switch 2	1 bit
5	Room Scenario	Automatic Blind recall	1 bit
6	Room scenario	KNX scene recall	1 Byte
7	Room Scenario	Internal block recall	1 bit
8	Room Scenario	Thermostat ON/OFF	1 bit
9	Room Scenario	Thermostat operating mode	1 Byte

Device: 1.1.5 RM/S2.1 Room Master,Premium,MDRC

Enable Room Scenario 1...16

Room Scenario 1

Recall on object value = 0 (object "Room Scenario 1...16 recall"): <--- NOTE

On bus voltage recovery recall Room Scenario: no

Event 1 started immediately: yes

Scene recall: device internal and via the bus

Scene number [1...64]: 4

Switch 1 send: no

Switch 2 send: no

ON/OFF send to thermostat: ON

1 byte value send: value [0...255]

send value: 1

Automatic Blind output enable: no

Internal blocking the inputs: active

Event 2 started with a delay: no

Scene no. 4:
Floor light and the desk light switch on

Room Thermostat ON

Room Thermostat change to
Comfort mode

Specified inputs are blocked

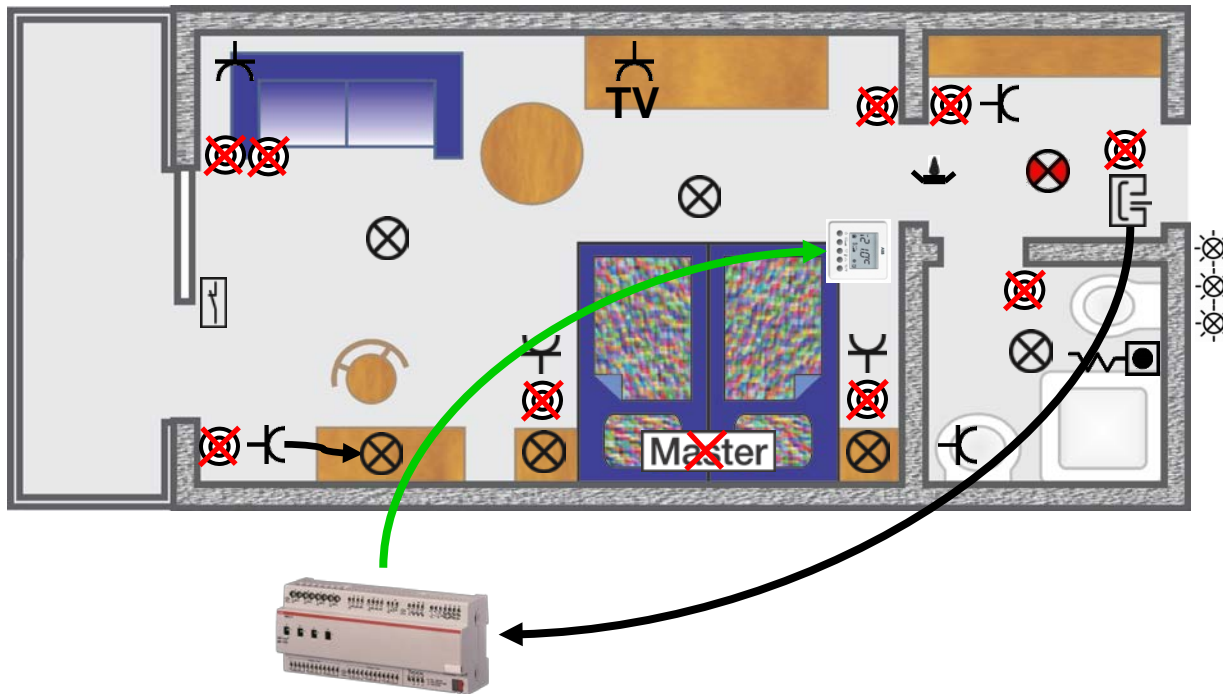
Webinar “Room Automation with KNX”

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



RM/S 1.1



RM/S 2.1



RM/S 3.1

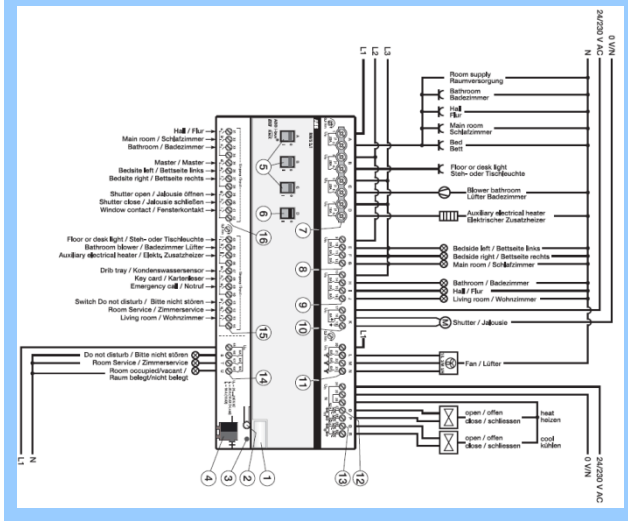
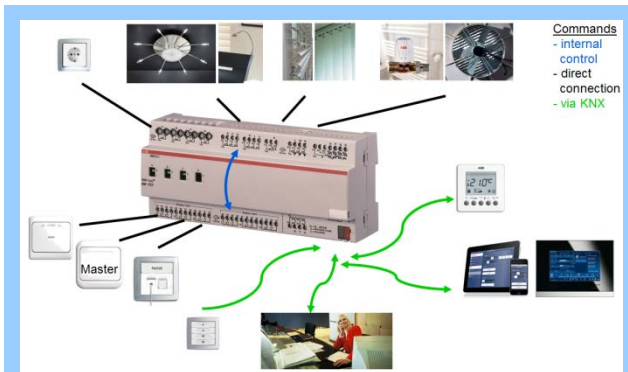


RM/S 4.1

	RM/S 1.1	RM/S 2.1	RM/S 3.1	RM/S 4.1
Inputs				
Binary via Contact Scanning	8	18	12	8
Outputs				
Relay 20 A (16 AX)	1	3	4	-
Relay 16 A (10 AX)	2	1	-	-
Relay 6 A	-	9	-	8
Fanspeeds or Relay 6 A	3	3	-	-
Electronic Output 0,5 A	4	4	-	-
Change Over Contact 6 A (Shutter/blinds)	-	1	-	-
Change Over Contact 6 A or Relay 6 A	-	-	4	-

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



IO/S 8.6.1.1



IO/S 4.6.1.1

- 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 a...d...h

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 A...D...H

Normally closed contact/
Normally open contact X

Staircase lighting X

Webinar “Room Automation with KNX”

In-/Outputs functions



ETS Parameter – input

Device: 1.5.1 IO/S8.6.1.1 IO-Actuator 8f,MDRC

<p>General</p> <p>Enable inputs a...d</p> <p>a: Switch sensor</p> <p>b: Value / forced operation</p> <p>Enable inputs e...h</p> <p>Enable outputs A...D</p> <p>A: Output (6A)</p> <p>Enable outputs E...H</p>	<p>Debounce time: 50 ms</p> <p>Distinction between short and long operation: no</p> <p>Opening the contacts => Event 0: <--- NOTE</p> <p>Closing the contacts => Event 1</p> <p>Activate minimum signal duration: no</p> <p>Scan input after download, ETS reset and bus voltage recovery: no</p> <p>Enable communication objects:</p> <p>"Block" 1 bit: no</p> <p>"Start event 0/1" 1 bit: no</p> <p>"Switch 1" (cyclic sending possible): yes</p> <p>Reaction on event 0: no reaction</p> <p>Reaction on event 1: TOGGLE</p> <p>Internal connection: no</p> <p>Cyclic sending: no</p> <p>"Switch 2": no</p> <p>"Switch 3": no</p>
--	--



Webinar “Room Automation with KNX”

In-/Outputs functions



ETS Parameter – output

Device: 1.5.1 IO/S8.6.1.1 IO-Actuator 8f,MDRC

General	Reaction of output	N/O
Enable inputs a...d a: Switch sensor b: Value / forced operation	Contact position on bus voltage failure	Unchanged
Enable inputs e...h	Object value "Switch" on bus voltage recovery	not write
Enable outputs A...D A: Output (6A)	Enable function time	no
Enable outputs E...H	Enable communication object "Status Switch" 1 bit	yes
	Send object value	after a change or on request
	Object value of contact position	1 = closed, 0 = opened

Webinar “Room Automation with KNX”

In-/Outputs functions



ETS Parameter – internal connection

Device: 1.5.1 IO/S8.6.1.1 IO-Actuator 8f,MDRC

General

Enable inputs a...d

a: Switch sensor

b: Value / forced operation

Enable inputs e...h

Enable outputs A...D

A: Output (6A)

Enable outputs E...H

Debounce time: 50 ms

Distinction between short and long operation: no

Opening the contacts => Event 0
Closing the contacts => Event 1

<--- NOTE

Activate minimum signal duration: no

Scan input after download, ETS reset and bus voltage recovery: no

Enable communication objects:

"Block" 1 bit: no

"Start event 0/1" 1 bit: no

"Switch 1" (cyclic sending possible): yes

Reaction on event 0: no reaction

Reaction on event 1: TOGGLE

Internal connection

no

no

Output A (6 A)

Output B (6 A)

Output C (6 A)

Output D (6 A)

Output E (6 A)

Output F (6 A)

Output G (6 A)

Output H (6 A)

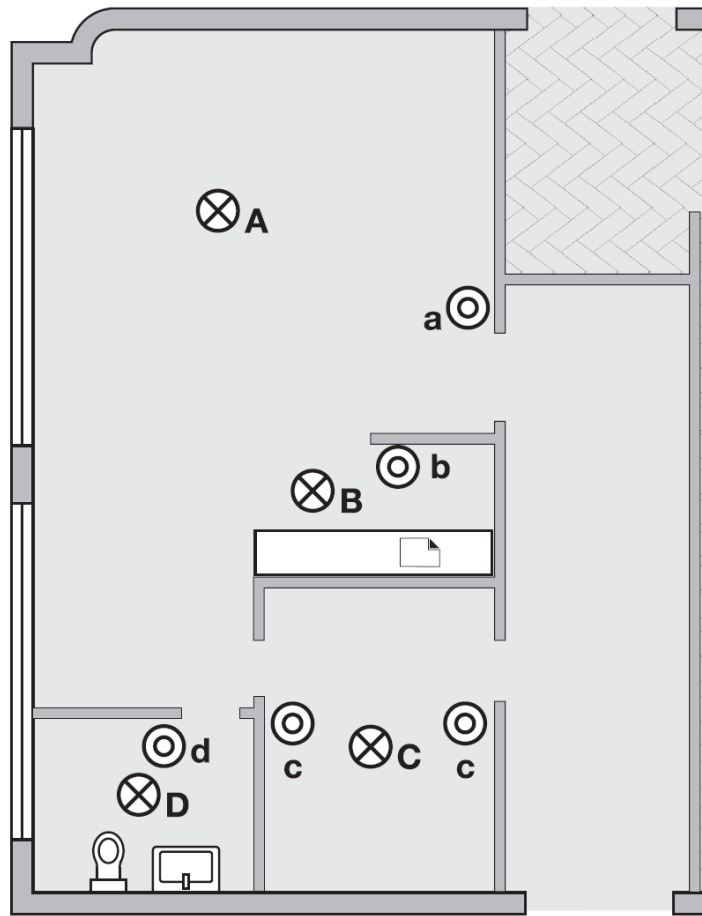
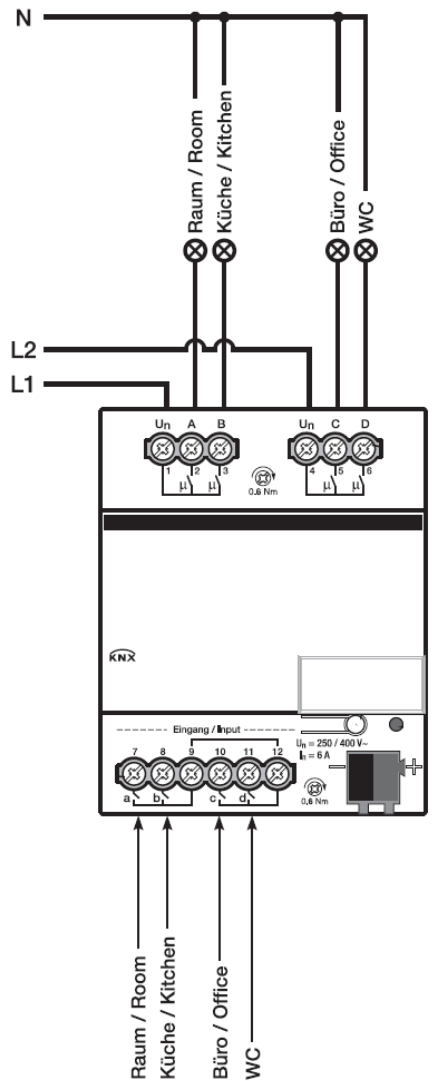
Cyclic sending

"Switch 2"

"Switch 3"

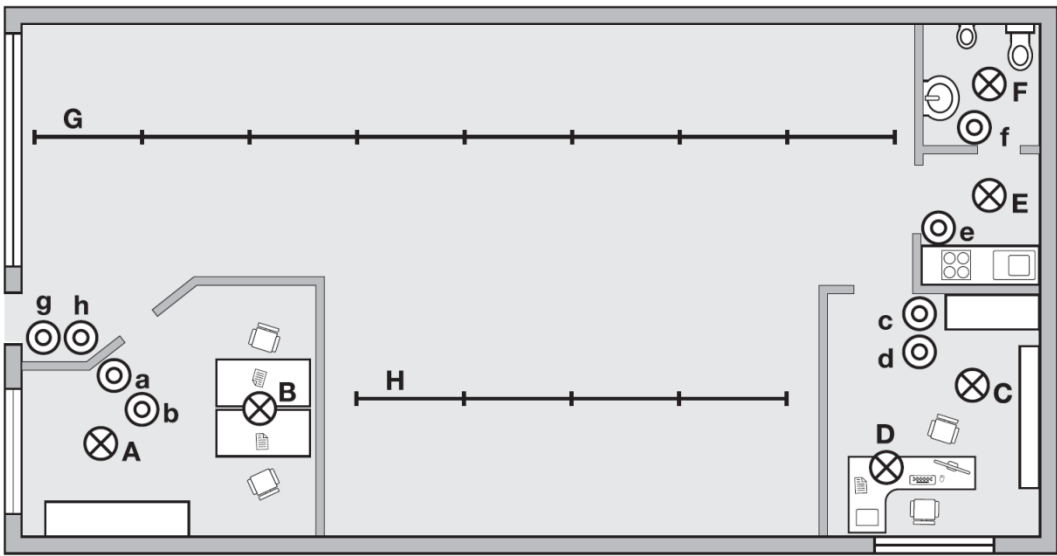
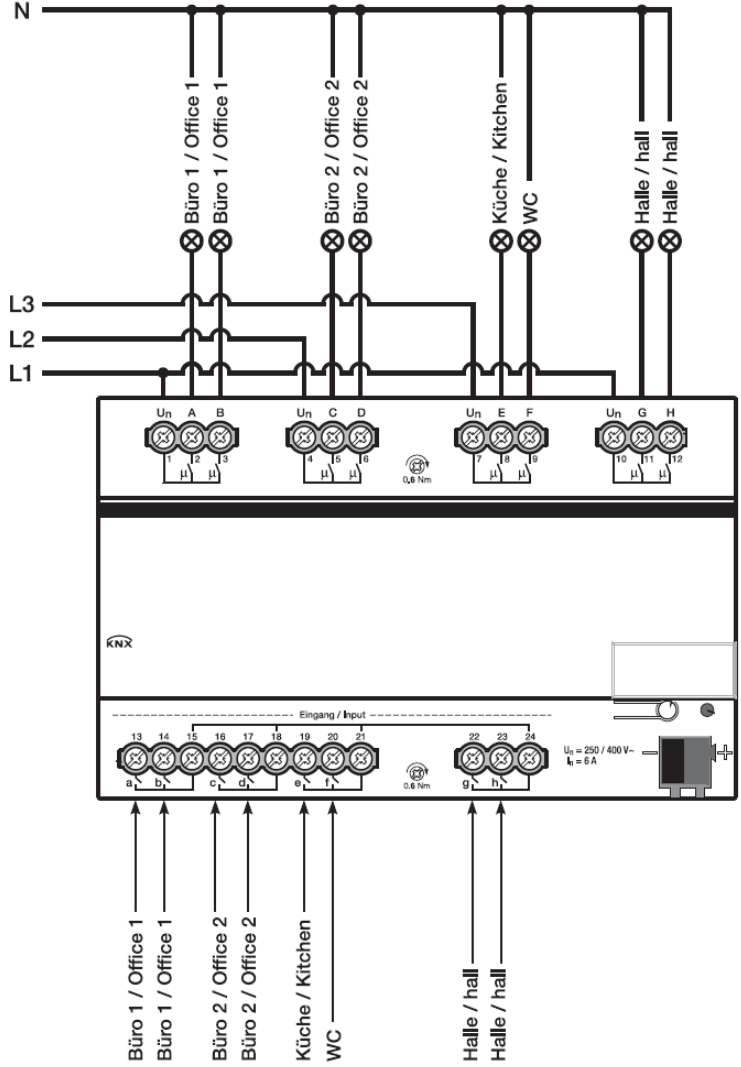
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IO/S 4.6.1.1



Webinar “Room Automation with KNX”

IO/S 8.6.1.1

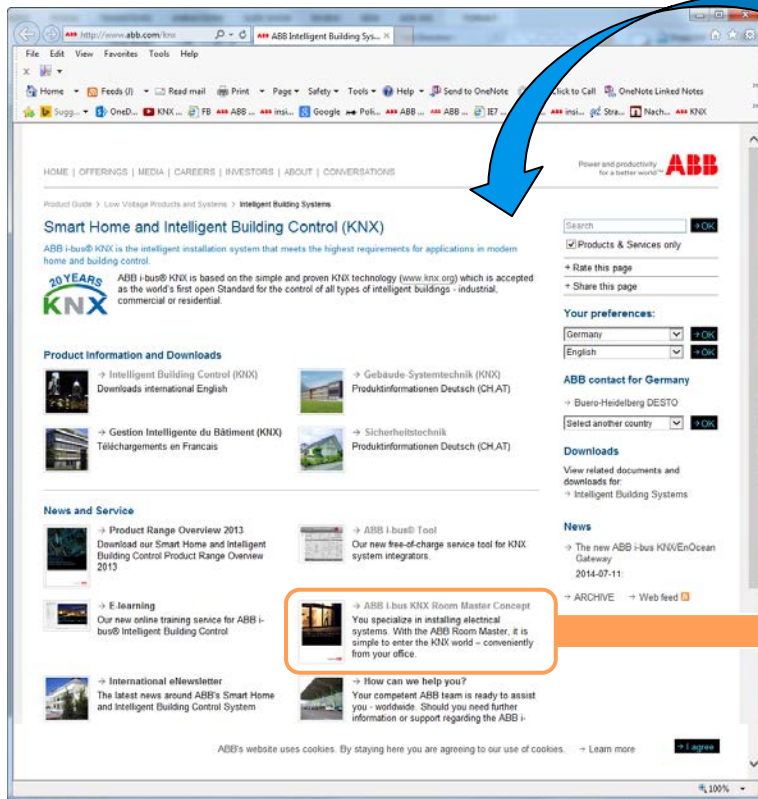


Webinar “Room Automation with KNX” Argumentation



- 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.

Webinar “Room Automation with KNX” Marketing Material


HOME | OFFERINGS | MEDIA | CAREERS | INVESTORS | ABOUT | CONVERSATIONS

Product Guide > Low Voltage Products and Systems > Intelligent Building Systems > **ABB i-bus KNX Room Master**

ABB i-bus KNX Room Master

Your first step into the KNX world

ABB i-bus® Room Master - Bridging conventional ...




Power and productivity
for a better world™ **ABB**

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.

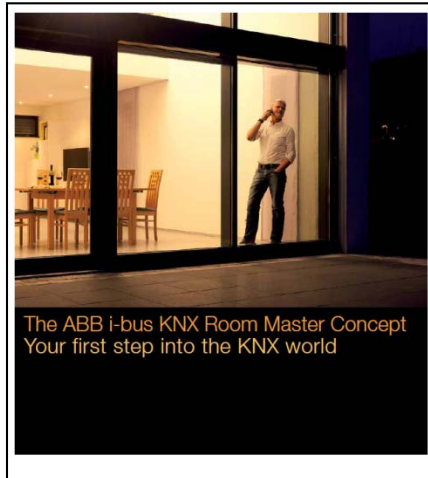
Four devices for flexible applications
Room Master devices are combined units with input and output functions – the right device for every application. The special feature of the Room Master product range is its internal wiring: inputs and outputs can be internally connected without group addresses using 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
→ Brochure “Your first step into the KNX world”
You specialize in installing electrical systems. With the ABB Room Master, it is

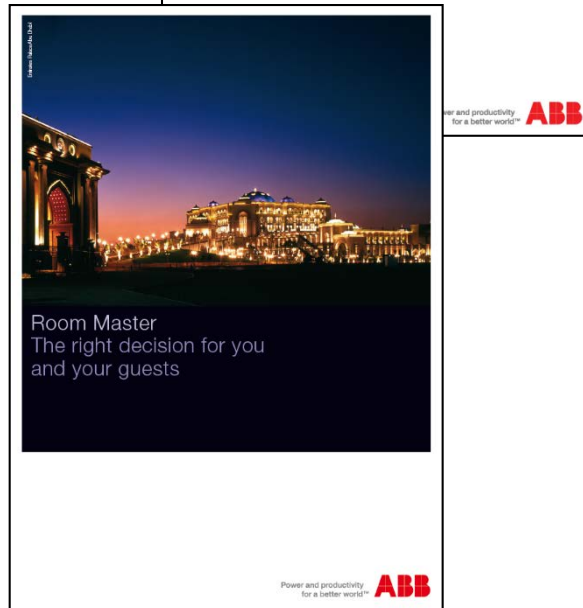


Webinar “Room Automation with KNX” Documentation



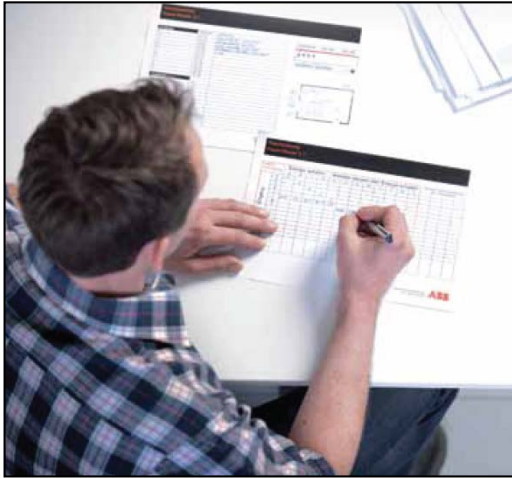
Brochures:

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



- Tested ETS4 project with preconfigured functionality
- <http://www.abb.com/product/ap/seitp329/B67F26C3CFC8B19DC1257B9D00270B15.aspx>

Room	Comments	Usage
1	Light in the apartment corridor	Usage: Push buttons for
2	Light in the living room	Light in the living room
3	Light in the bathroom	Light in the bathroom
4	Light in the bedroom	Light in the bedroom
5	Light in the kitchen	Light in the kitchen
6	Light in the hallway	Light in the hallway
7	Light in the living room	Light in the living room
8	Light in the bathroom	Light in the bathroom
9	Light in the bedroom	Light in the bedroom
10	Light in the kitchen	Light in the kitchen
11	Light in the hallway	Light in the hallway
12	Light in the living room	Light in the living room
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15	Light in the kitchen	Light in the kitchen
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25	Light in the kitchen	Light in the kitchen
26	Light in the hallway	Light in the hallway
27	Light in the living room	Light in the living room
28	Light in the bathroom	Light in the bathroom
29	Light in the bedroom	Light in the bedroom
30	Light in the kitchen	Light in the kitchen
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100	Light in the kitchen	Light in the kitchen

ETS 4 Project: "PMS3 - Apartment 1 (single)"

ABB

- Planning templates
- <http://mailing.knx-gebäude-systeme.de/pdf/RoomPlanningTemplate.pdf>

Webinar “Room Automation with KNX” eLearning

The screenshot displays a web browser window with the address bar showing http://knx-gebaeudesysteme.de/sto_g/English/ELEARNIN. The browser tabs include "ABB Intelligent Building Systeme...", "ABB i-bus KNX | English", and "Elearning_Room_Master". The page title is "Elearning_Room_Master (00:02 / 21:38)".

The main content area shows a slide with a photograph of the ABB i-bus KNX Room Master device. The slide text reads: "eLearning, ABB STOTZ-KONTAKT GmbH" and "ABB i-bus KNX Room Master". Below the slide, there is a copyright notice: "© ABB Stotz Kontakt | www.abb.com/knx Juni 06, 2009 | Slide 1" and the ABB logo with the tagline "Power and productivity for a better world™".

The left sidebar contains a navigation menu with the following items:

- 1. ABB i-bus KNXRoom Master
- 2. Room Master Learning Objectives
- 3. Requirements in modern buildings
- 4. Hospital rooms
- 5. Apartments
- 6. Hotel rooms
- 7. Hotel room
- 8. Hotel room
- 9. Hotel room – functional overview
- 10. The solution
- 11. Room Master Learning Objectives
- 12. Key functions of the Room Master
- 13. Types of Room Master
- 14. Advantages in planning & installation
- 15. What is KNX?
- 16. Room Master Learning Objectives
- 17. Product overview
- 18. Room Master Basic (RM/S 1.1)
- 19. Room Master Basic - Inputs/Outputs
- 20. Room Master Basic – Details (example)
- 21. Room Master Basic – Configuration Distribu
- 22. Room Master Basic - Memorize
- 23. Room Master Premium (RM/S 2.1)
- 24. Room Master Premium - Inputs/Outputs
- 25. Room Master Premium – Details (example)
- 26. Room Master Premium - Configuration Distr
- 27. Room Master Premium - Memorize
- 28. Basic vs. Premium – a comparison

The bottom of the interface features a playback control bar with the following information: "SLIDE 1 OF 36", "PLAYING", "00:02 / 00:39", and a "NOTES" button. The zoom level is set to 50%.

Webinar “Room Automation with KNX” Documentation



- Room Master in Hotel Neu Heidelberg



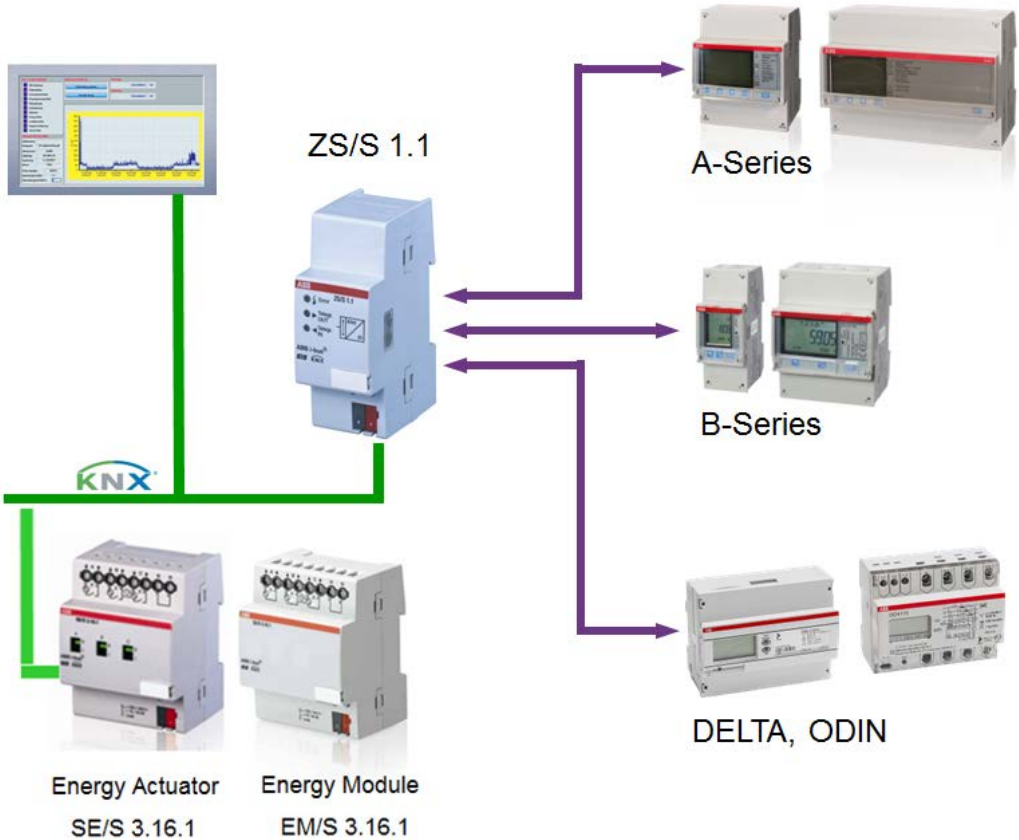
Webinar “Room Automation with KNX” Video Room Controller



http://www.knx-gebaeudesysteme.de/sto_g/_All/OTHER/RCA_81_MOV_EN_V1-0_LOW_RES.MPG

Webinar “Room Automation with KNX”

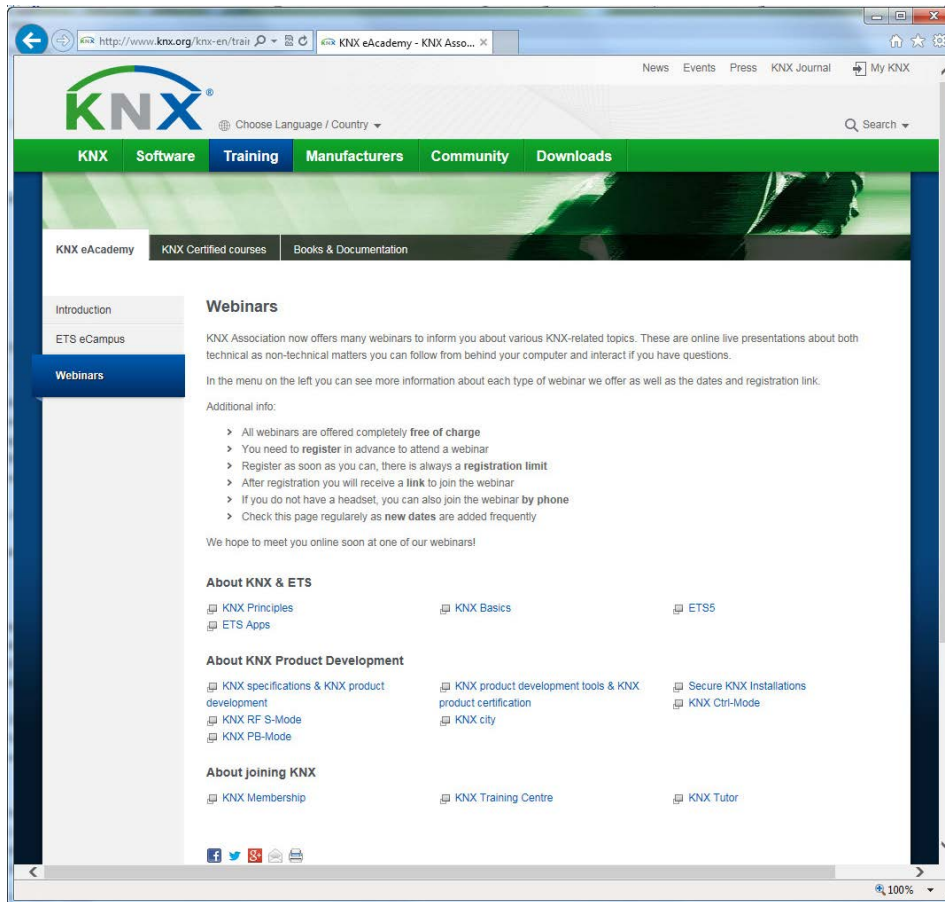
Next Webinar



Metering and KNX

5th of November 2014

KNX Association Webinars



- KNX Association now offers many webinars to inform about various KNX-related topics
 - ETS Apps
 - KNX Basics
 - ETS5

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for a better world™

