Room Controller

- **economic**

- **flexible**

- **modular**
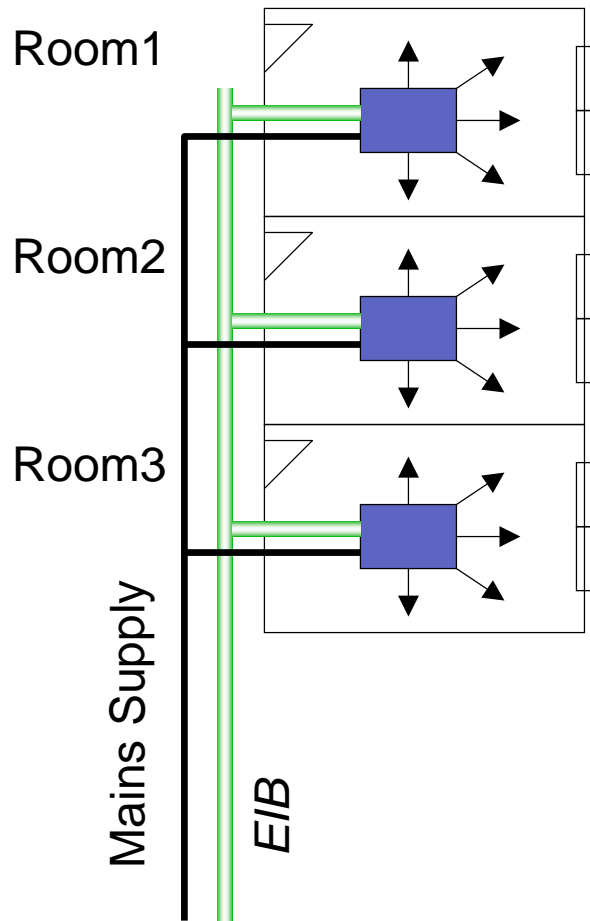
Room Controller RC/A 8.1

Trends in building installation

- **Increasing number of applications per room**

- **Increasing functionality in the applications**

- **Decentralized mounting of devices in the inserted ceiling and underfloor wiring installation**

- **Focus on reduction of fire loads**

- **Less time and effort for assembly&mounting**

- **Cost optimized solutions**
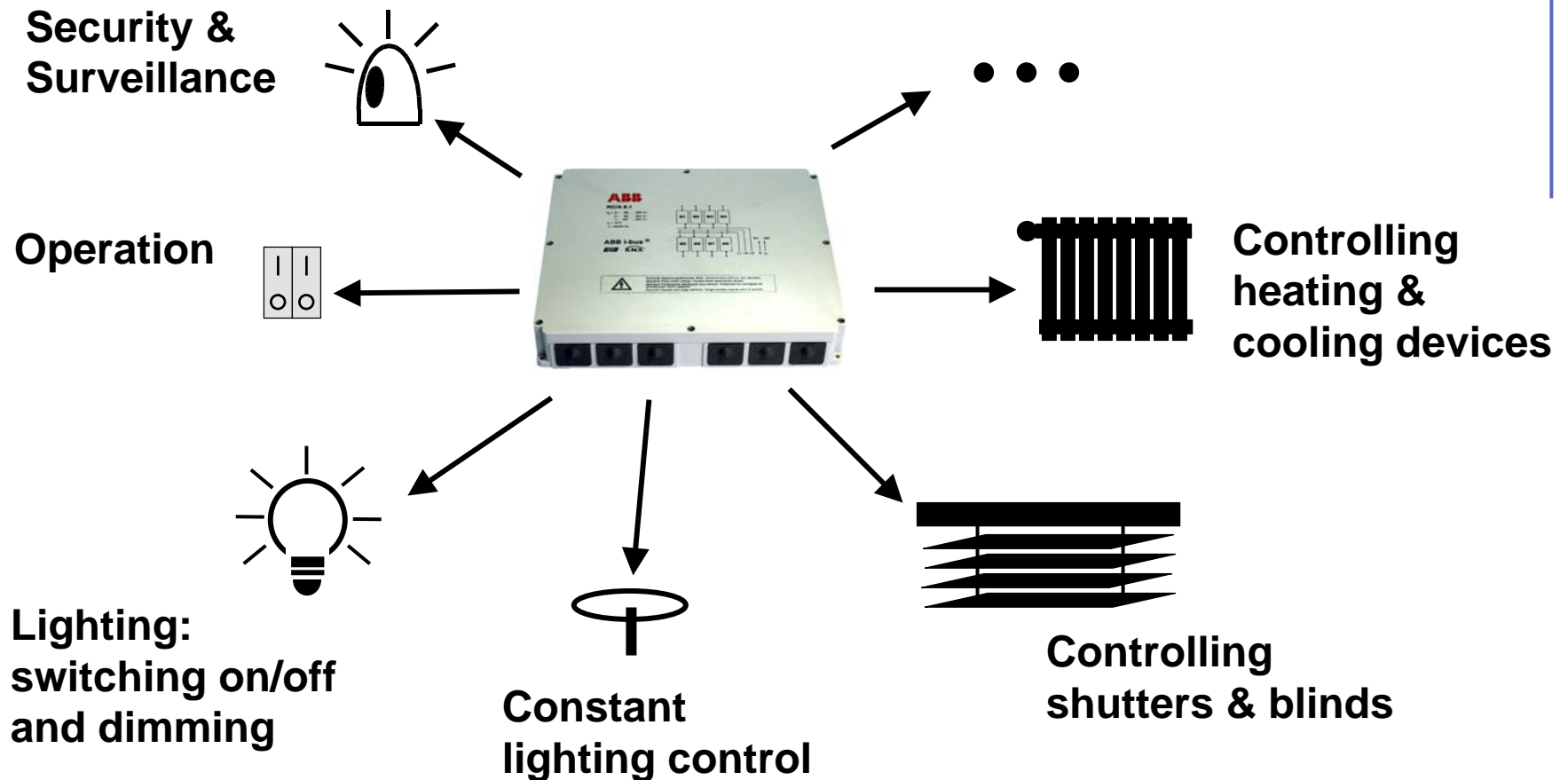
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Decentralized Installation

Room1

Room2

Room3

Mains Supply

EIB

How about ...

*... one device per room
to control all functions*

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The "one device per room"- principle

Security & Surveillance

Operation

Controlling heating & cooling devices

Lighting: switching on/off and dimming

Constant lighting control

Controlling shutters & blinds

Room Controller RC/A 8.1

Decentralized Installation: Some Advantages

Room1

Room2

Room3

Mains Supply

EIB
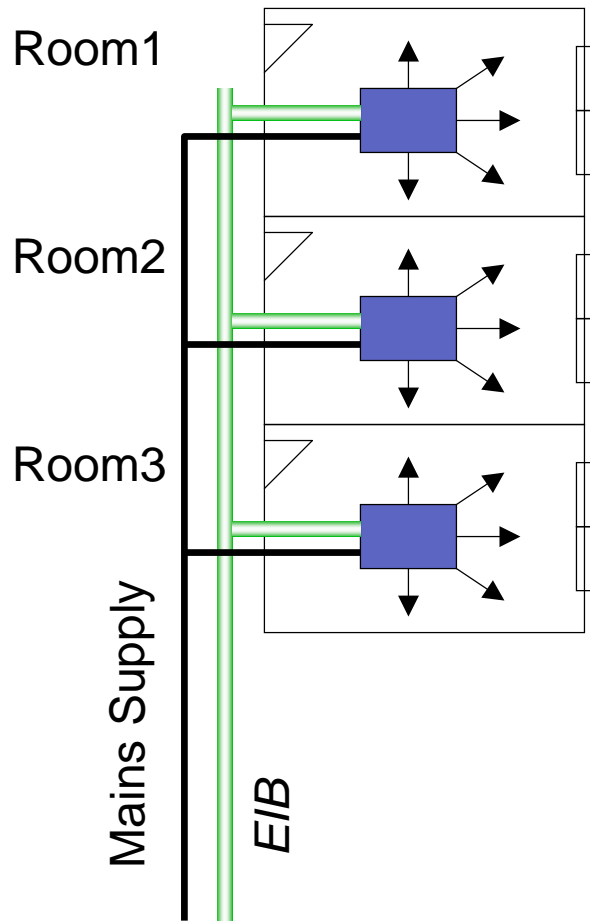
- **Mounting and test on location**

- **Less wiring**
  - $\rightarrow$ **Reduction of fire load**
  - $\rightarrow$ **Increasing clearness**

- **Flexibility in the planning state: functions can easily be changed or extended**

- **Quick planning and installation, especially for many rooms with similar functions**

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The Technics

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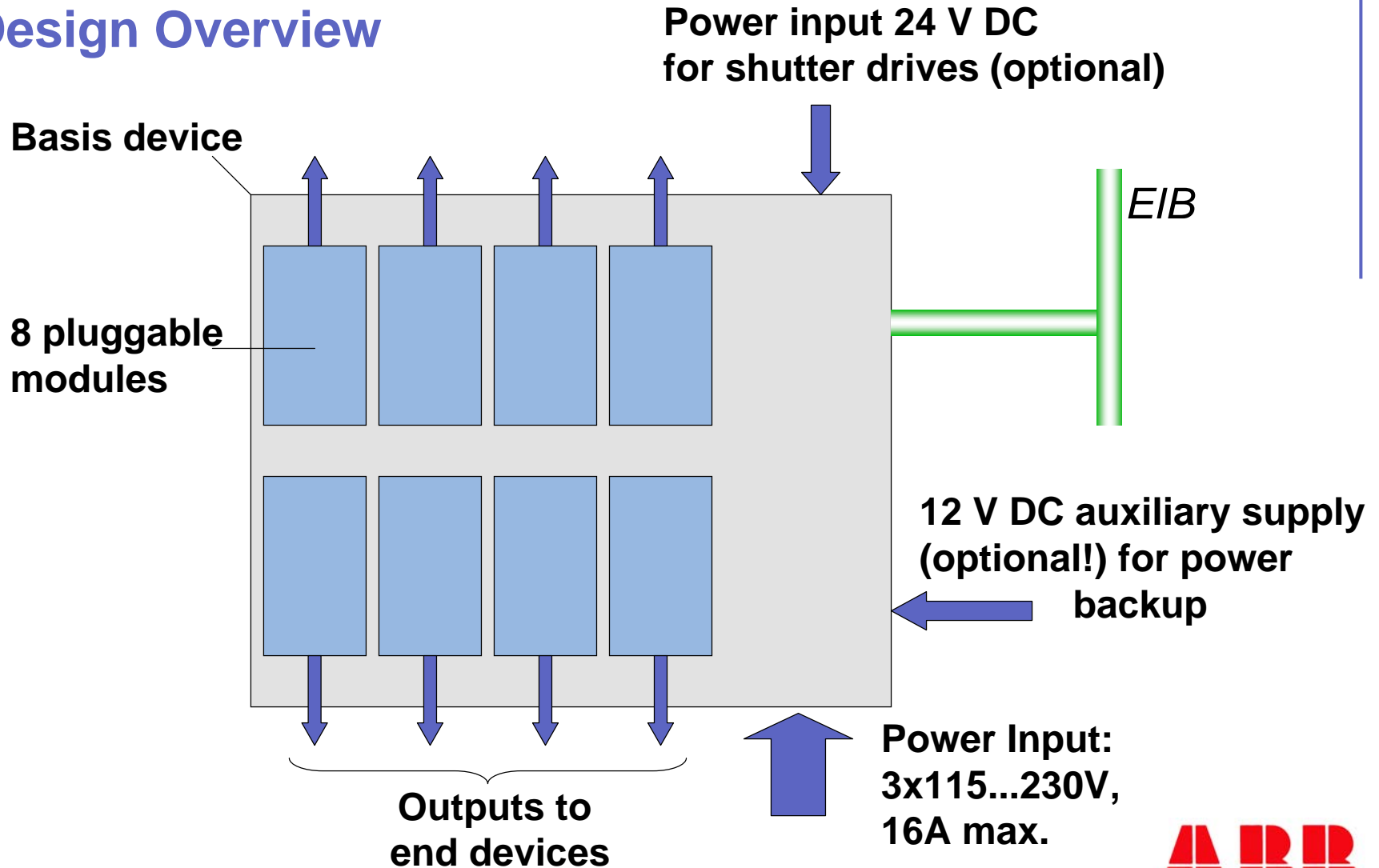# Room Controller RC/A 8.1

Overview

- **Modular device for up to eight pluggable modules**

- **Surface mounted device, optimized for underfloor wiring and inserted ceiling**

- **Decentralized installation concept**

- **Connection via pluggable screw type terminals**

- **Testing facilities by manual operation of the outputs**

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Room Controller RC/A 8.1

Design Overview

Power input 24 V DC for shutter drives (optional)

Basis device

EIB

8 pluggable modules

12 V DC auxiliary supply (optional!) for power backup

Outputs to end devices

Power Input: 3x115...230V, 16A max.

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Room Controller RC/A 8.1

The housing: for the heavy duty application in the underfloor and inserted ceiling

Quick screwing

270 mm

50 mm
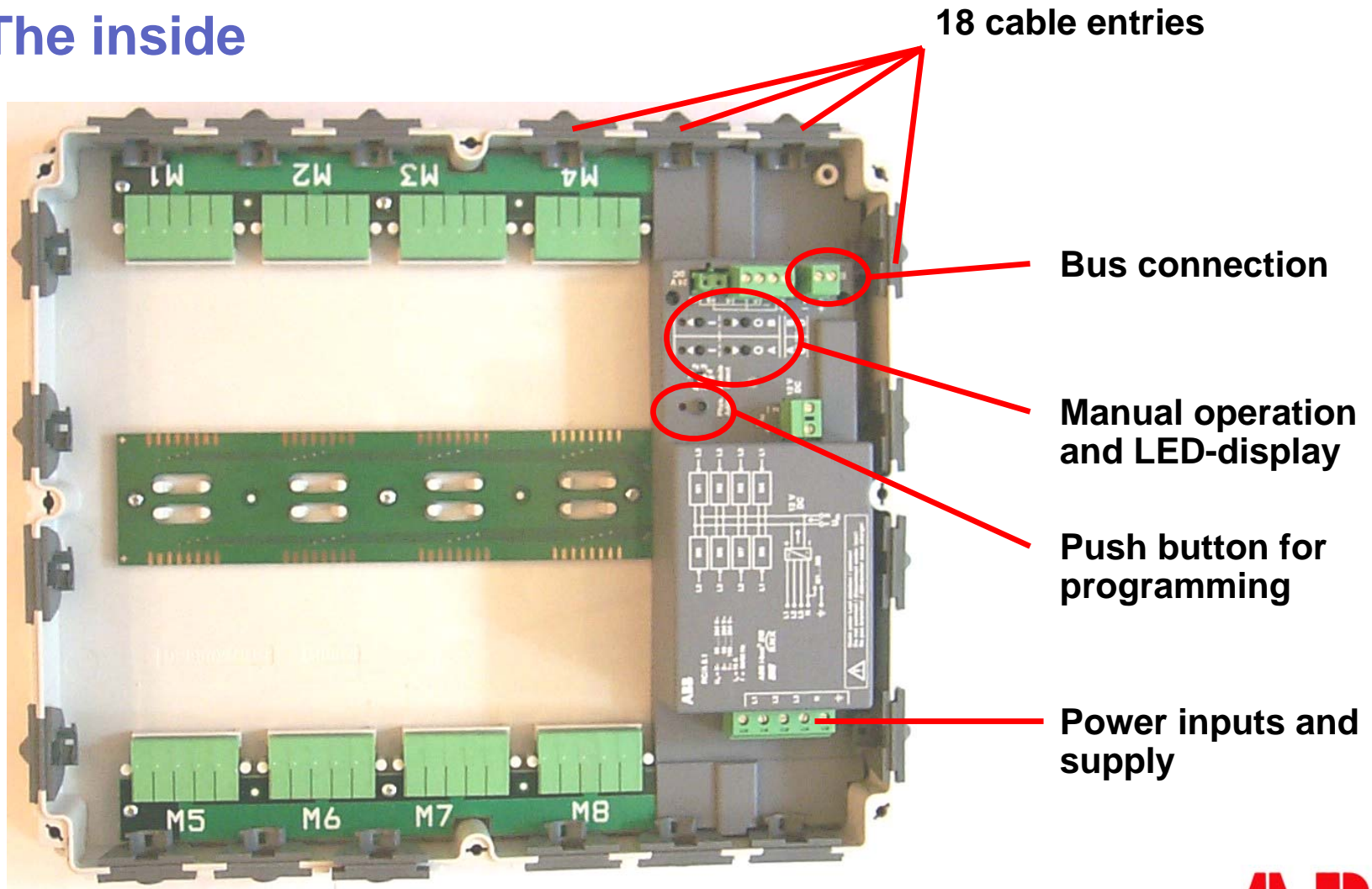
316 mm

Splash guard: IP 54

Non halogen housing

Room Controller RC/A 8.1

The inside

18 cable entries

Bus connection

Manual operation and LED-display

Push button for programming

Power inputs and supply

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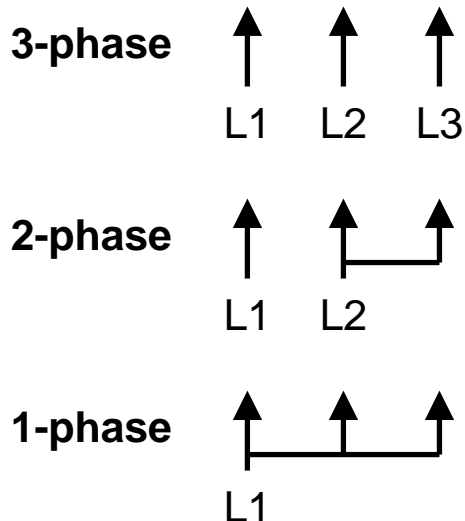# Room Controller RC/A 8.1
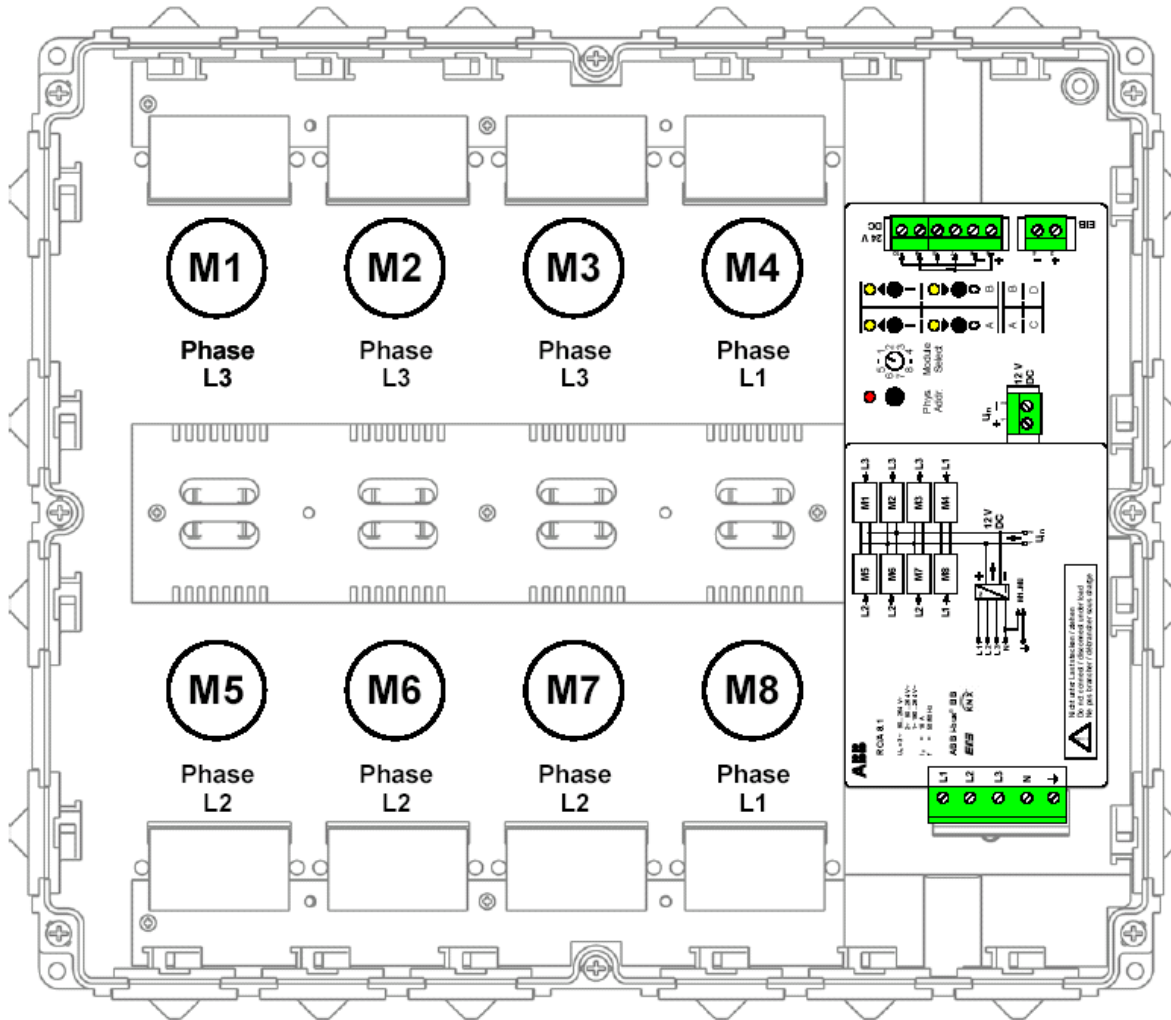
The module slots

- **When inserted, the modules are connected automatically to the mains**

- **The slot assigns the module to the according phase**

Room Controller RC/A 8.1

The Power Supply:
## A Professional Security Concept

Power input:

3-phase

↑ ↑ ↑

L1　L2　L3

2-phase

↑ ↑ ↑

L1　L2

1-phase

↑ ↑ ↑

L1

- **The device is supplied by the mains**
  - → **low consumption of bus current**
  - → **the internal functions remain unaffected on bus voltage failure!**

- **The function is guaranteed as long only one phase remains active**

- **The optional 12 V auxiliary voltage supply ensures the full operation also on complete 230 V voltage failure**

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Room Controller RC/A 8.1
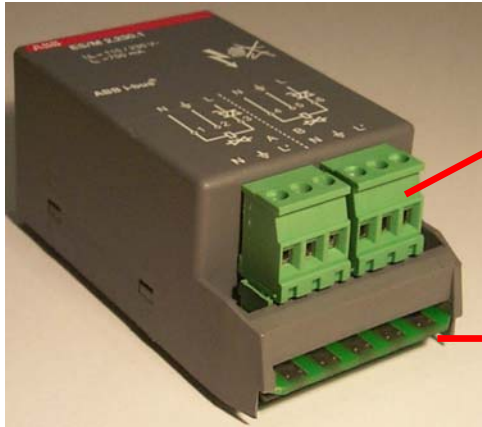
The Modules

**Connection terminals
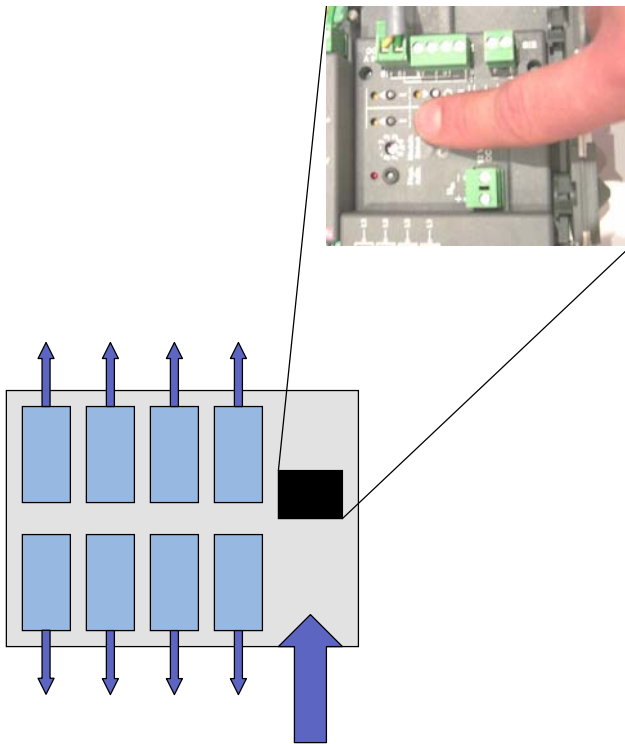(plug in screw type terminals)**

Power input

**Contacting of
the control lines**

Room Controller RC/A 8.1

Quick installation

1. **Mounting the base device**

2. **Plug in of the modules**

3. **Connection of the end devices**
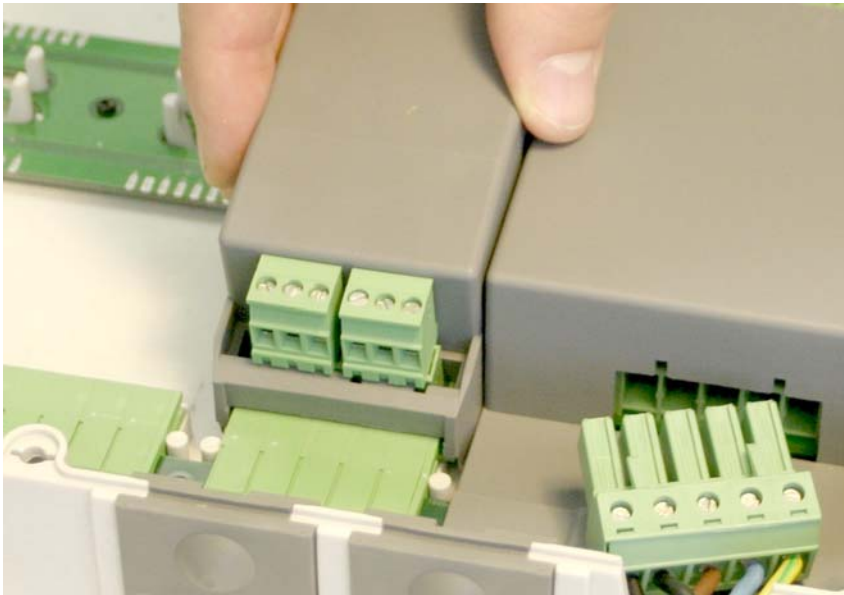
4. **Applying of voltage**

5. **Testing
(without bus voltage or
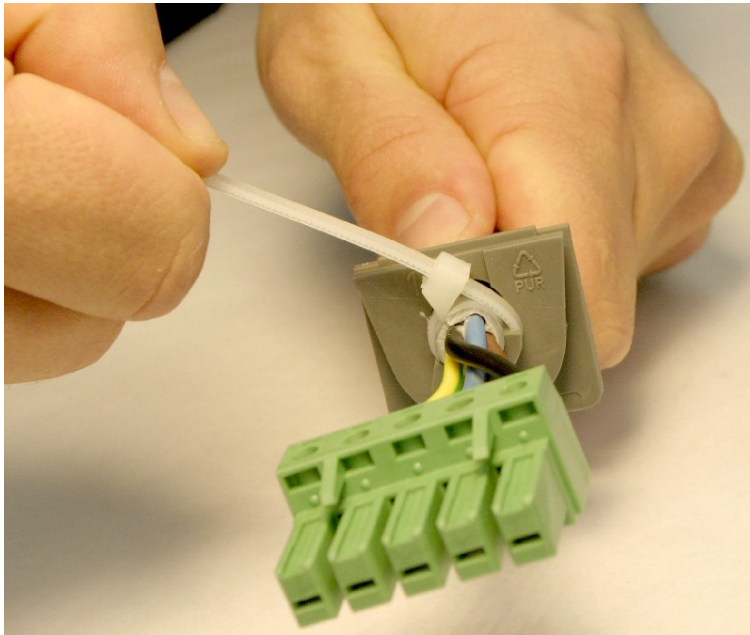programming)**

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Inserting the Modules

- **Simple Insertion and snapping in**

- **Automatic connection to the mains supply**
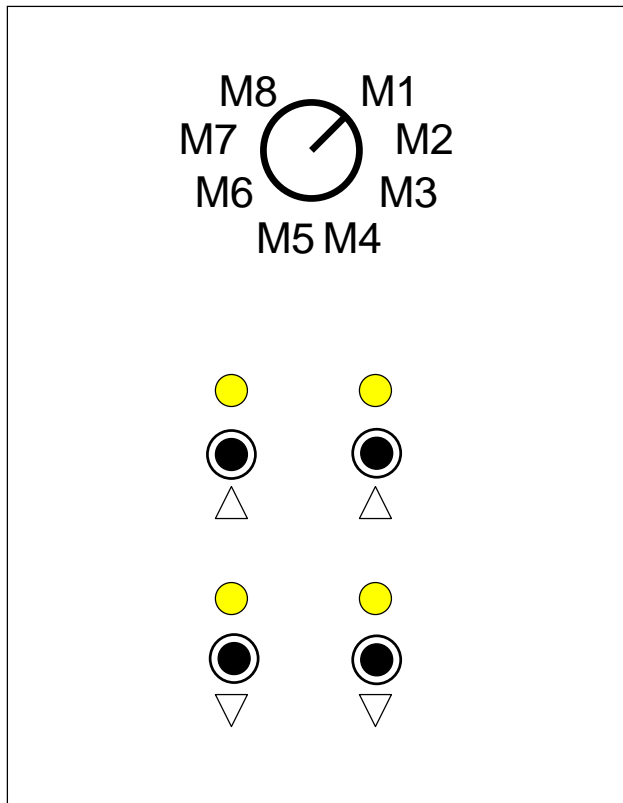
- **Every module can be inserted into any slot**

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Strain relief

- **The strain relief is carried out on the cable entry**

- **Simple fixing by cable ties**

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Room Controller RC/A 8.1

Manual operation and display

M8 M1
M7 M2
M6 M3
M5 M4

Module selection

LEDs and push buttons

The manual operation can be carried out without programming or bus voltage

Room Controller RC/A 8.1

The product line

Room-Controller, Basis Device for 8 Modules	RC/A 8.1
Binary Input Module, 4-fold, 115/230 V	BE/M 4.230.1
Binary Input Module, 4-fold, 12/24 V	BE/M 4.24.1
Binary Input Module, 4-fold, Cont. Scanning	BE/M 4.12.1
Switch Actuator Module, 2-fold, 6A	SA/M 2.6.1
Shutter Actuator Module, 2-fold, 230 V AC	JA/M 2.230.1
Shutter Actuator Module, 2-fold, 24 V DC	JA/M 2.24.1
Switch/Dim Actuator Module, 2-fold, 6A	SD/M 2.6.1
Light Controller Module, 1-fold, 6A	LR/M 1.6.1
Univ. Dim Actuator Module, 1-fold, 300 VA	UD/M 1.300.1
Electr. Switch Actuator Module, 2-fold, 230 V	ES/M 2.230.1
Electr. Switch Actuator Module, 2-fold, 24 V	ES/M 2.24.1

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Modules and Functions
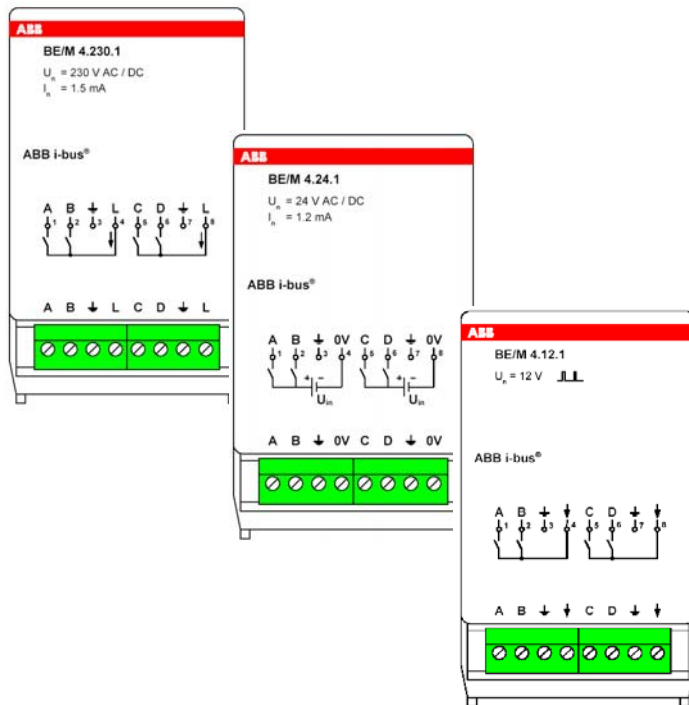
Room Controller RC/A 8.1

Central Functions

- **Status signaling via Bus in case of**
  $\rightarrow$ **module failure**
  $\rightarrow$ **wrong module mounting**
  $\rightarrow$ **excess temperature**

- **Module configuration can be read out via Bus**

- **Monitoring Bus communication: Adjustable behaviour in case of failure**

- **The basis device manages the bus-communication: only one bus device!**

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Room Controller RC/A 8.1

Binary Input Modules
BE/M 4.230.1, BE/M 4.24.1, BE/M 4.12.1

- **4 inputs per module**

- **Voltage types:**
  - 230 V AC / DC
  - 12 / 24 V AC / DC
  - contact scanning

Room Controller RC/A 8.1

Functions „Binary Input"
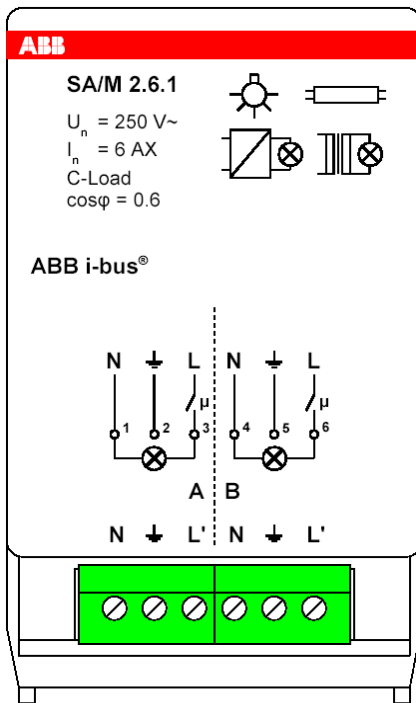
Standard functionality
„Binary Input"
(e.g. US/U x.2)

Functions (Overview)

- **Switch sensor**
- **Dimming sensor**
- **Shutter sensor**
- **Send value**
- **Controlling light scenes**
- **Multi operation**
- **Switching sequence**
- **Pulse counter**

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Switch Actuator Module
SA/M 2.6.1

- **2 Outputs**

- **High switching current (16 A / AC1)**

- **Max. continuous current 6 A per output**

- **C-Load: max. 70 µF**
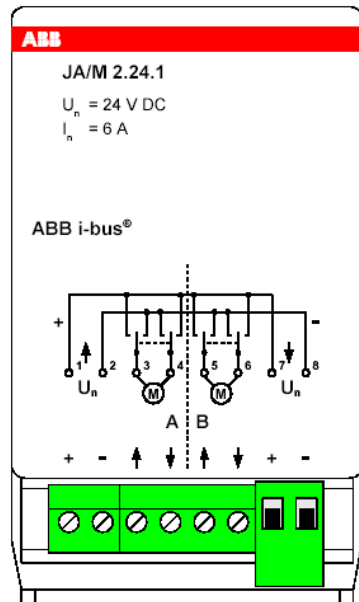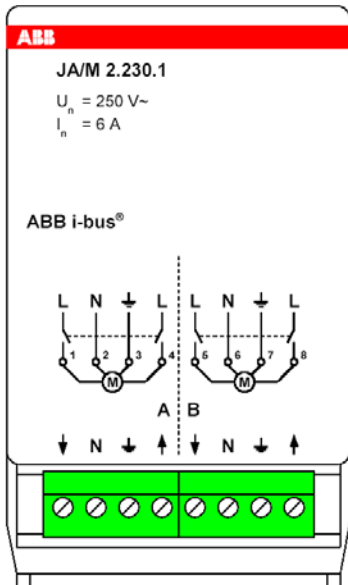
Room Controller RC/A 8.1

Function „Switch Actuator"

- **Time functions**
    - **Staircase function (with „pumping up" and „warning")**
    - **Switch on / off delay**
    - **Flashing**

- **1-bit-presets: 4 per output**

- **8-bit-scene: 5 allocations per output**

- **2 assignment objects per output**
    - **AND / OR / XOR / door function**

- **Forced operation (2-Bit)**

- **Cyclical surveillance of switching object**

- **Level reporting**

- **Fan-Coil-Function**

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Room Controller RC/A 8.1

Shutter Actuator Module
JA/M 2.230.1, JA/M 2.24.1

- **2 independent outputs**

- **Voltage types:**
  - 115 / 230 V AC
  -   12 / 24 V DC

- **max. continuous current 6 A
  per output**

Room Controller RC/A 8.1

Functions „Shutter Actuator"

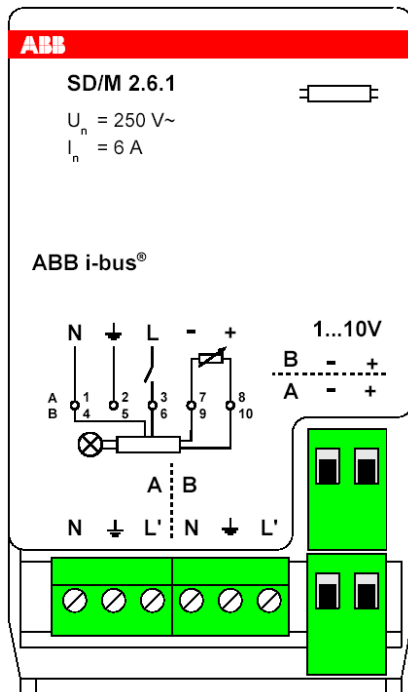*Standard functionaliy „Shutter actuator", (equivalent to JA/S ..., slightly limited)*

Functions

- **Weather alarm: 2 Objects**

- **Forced operation**

- **direct positioning**

- **Automatic shutter control system**

- **prepared for: facade-control with Shutter Control Unit JSB/S 1.1**

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Room Controller RC/A 8.1
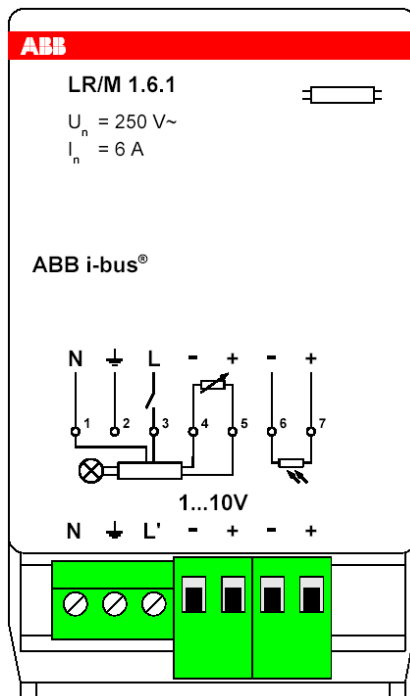
Switch / Dim Actuator Module
SD/M 2.6.1

- **2 switch / dim outputs : 1...10 V control outputs and relay outputs**

- **max. continuous current 6A per output**

- **Switching current 10 A**

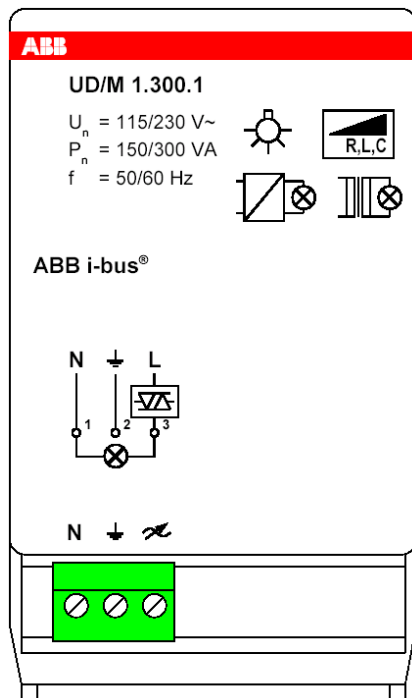## Light Controller Module
LR/M 1.6.1

- **For constant lighting control**

- **1 switch / dim output:
  1...10 V operate output and relay output**

- **1 light sensor input**

- **Max. switching current 10 A**

- **Max. continuous current 6 A**

Room Controller RC/A 8.1

Universal- Dim Actuator Module
UD/M 1.300.1

- **1 dimming output for inductive or capacitive charges**

- **Automatic load detection (can be deactivated!)**

- **Output power: 300 W**

- **Min. output power: only 2 W (!)**

- **Compensation of frequency shifting, voltage instablities and ripple control signals**

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Room Controller RC/A 8.1

Functions „Dim Actuator"

Standard functionality „Dim Actuator", similar for every dim actuator type

- **1-Bit-Presets: 4 per output**

- **8-Bit-Szene: 5 allocations per output**

- **Staircase function**
  - **with "pumping up" and "warning" function**
  - **Adjustable staircase time (via bus)**

- **Forced operation**

- **Adjustment of lighting characteristic**

- **For Universal Dim Actuator: detailed error code about the operating state of the device**

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Room Controller RC/A 8.1

Electronic Switch Actuator Module
ES/M 2.230.1 and ES/M 2.24.1
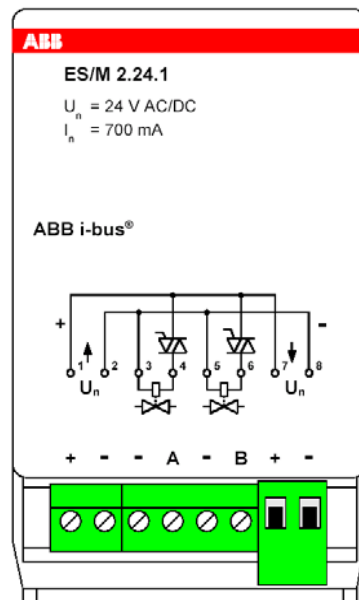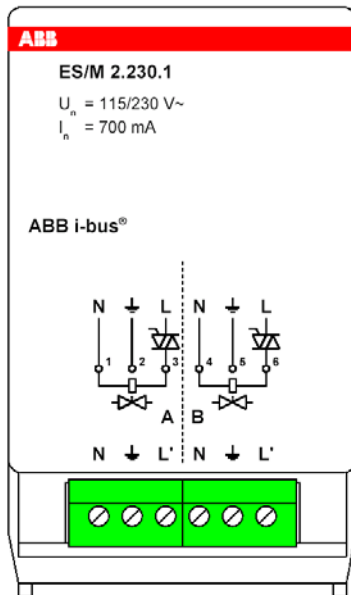
- **2 semi-conductor outputs, noiseless and wastage free**

- **Voltage types:**
  - 115 / 230 V AC / DC
  - 12 / 24 V AC / DC

- **max. continuous current 700 mA**

- **max. starting current 1 A**

Room Controller RC/A 8.1

Function „Heating Actuator"

- **Addressing by room thermostat via 1-bit or 8-bit object ("continuous control")**

- **Forced operation, e.g. for maintenance purposes**

- **Automatic cyclical valve purge**

- **Cyclic supervision of the room thermostat
  - on communication failure a fault operation is executed and an error message is sent on the bus**

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Room Controller RC/A 8.1

Universal Functions

The following functions are provided for every module:

- **Scene controlling with the objects 1-bit-preset and 1-bit-scene**

- **Forced operation**

Further the details ...

>>>

Room Controller RC/A 8.1

Universal Function I : Controlling Scenes

What is it?
Fix states that are parameterized and stored in the actuator (e.g. switching states or brightness values) are called by a single telegram

Which devices?
Switch actuators, shutter actuators, dim actuators

What is it used for?
**For comfortable operation of room functions.
In addition to that for flexible reaction on events, so that logic functions can be considerably reduced.**
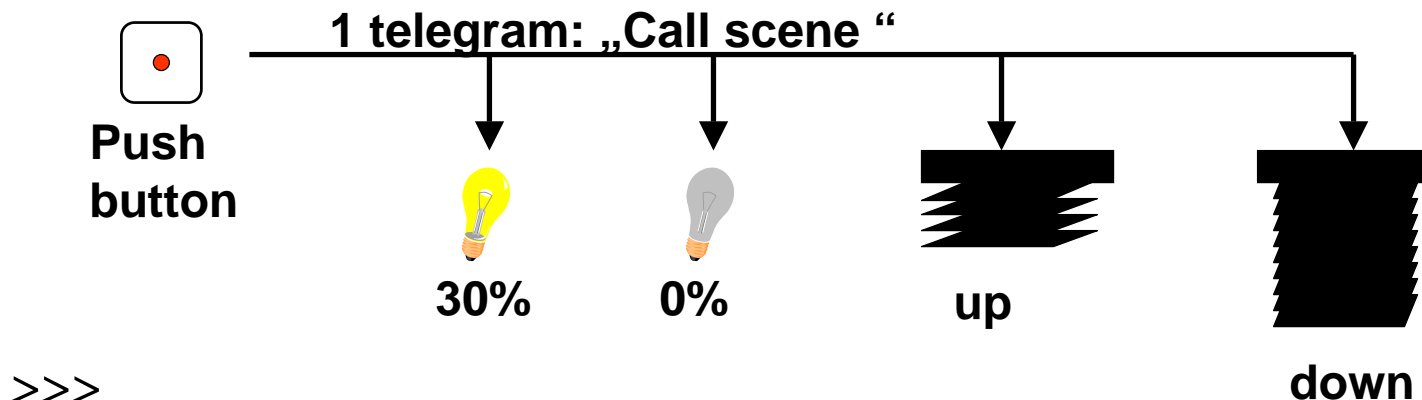
>>>

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Room Controller RC/A 8.1

Controlling Scenes (continued)

How does it work?

Example:
When leaving a building, the corridor lighting is dimmed to 30% and the other lighting is switched off. The shutters in the ground floor are closed, all others are open.

1 telegram: „Call scene "

Push button

30%   0%   up

down

>>>

Room Controller RC/A 8.1

Controlling Scenes (continued)

What else?

Scenes can also be adapted to the user's demands:

When pressing the push-button for a long time (e.g. 3s) , the actuator stores the current output state in memory. The next time the scene is called, the actuator will restore this state.

1 Telegram: „Store scene"

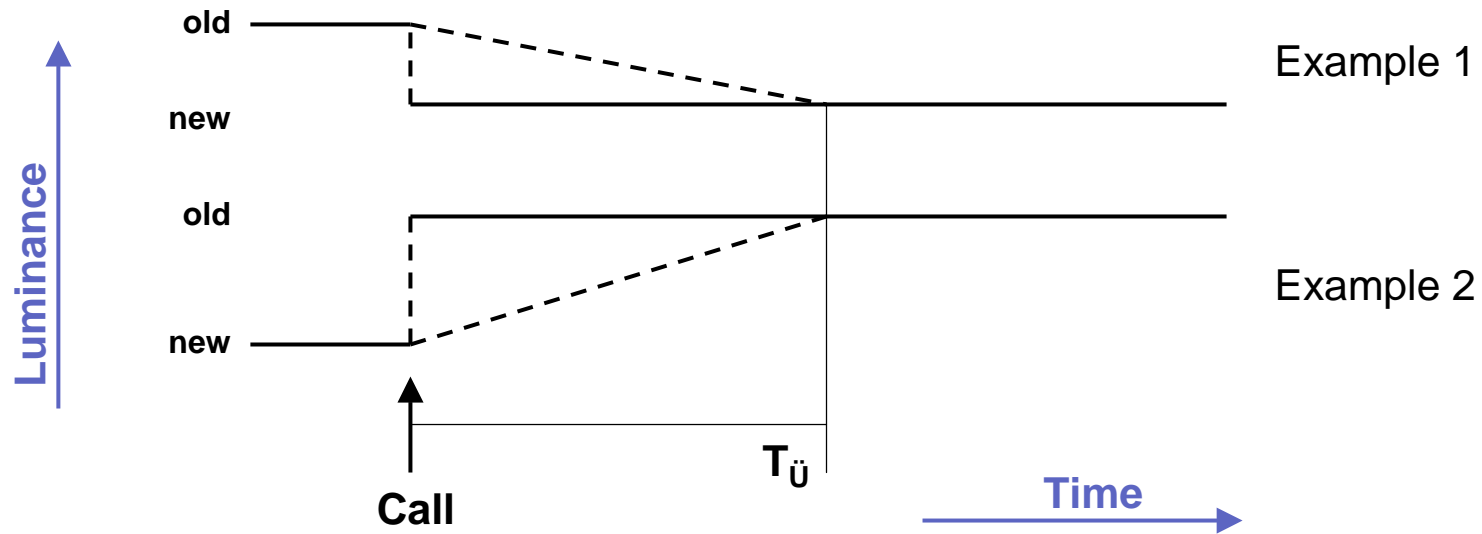**Push button**

40%

0%

40%

down

>>>
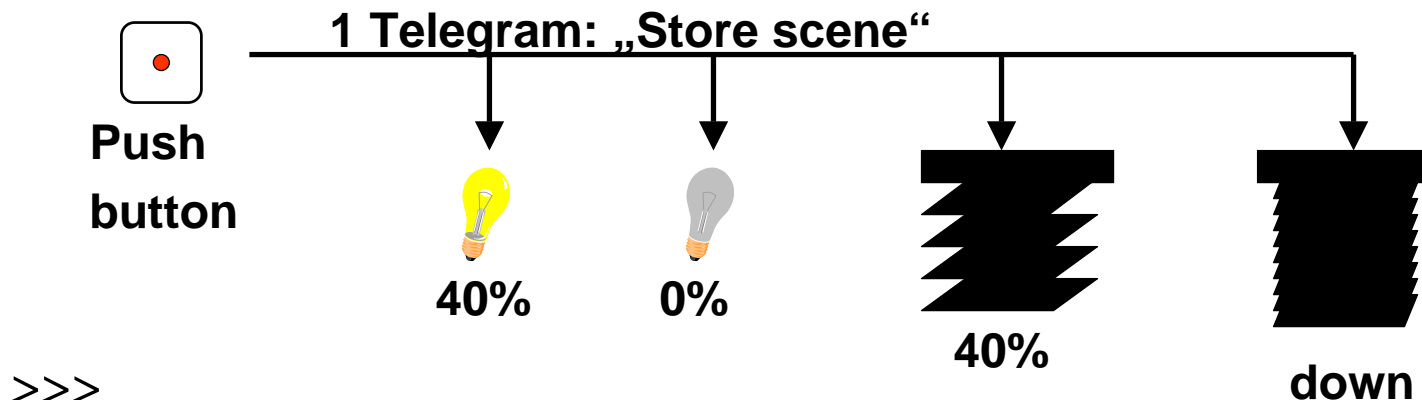
Room Controller RC/A 8.1

Contolling Scenes with Dimmable Lighting

- **On calling the scene, the new brightness value can be called immediately or gradually.**

- **Gradually dimming is defined by an transition time between the old and the new brightness.**

>>>

Room Controller RC/A 8.1

Controlling Scendes (Continued)

Two possibilities to control a scene:

1-Bit-Preset

- **1-Bit-Objekt for calling**
- **1-Bit-Objekt for storing**

8-Bit-scene

- **8-Bit-object for calling and storing the scene**
- **Object value contains a scene number.**
- **In the parameters the outputs are assigned to one or more a scene numbers.**

The actuators of the Room Controller are able to cope with both possibilies.

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Room Controller RC/A 8.1

Advantages of 1-bit presets

- **More flexible and clear than 8-bit-scenes**

- **Extra function „Reset":**
  A stored scene value can be reset to the parameterized value (e.g. after an unintentional storing)

- **Extra function „Restore":**
  After having called a scene, it is possible to restore the state before calling.
  Example: A presentation room is darkened. After the presentation has been finished, the lighting is restored to the value before the presentation.

<<<

Room Controller RC/A 8.1

Universal Function II : Forced operation

What is it? **An output is set into a certain position and blocked for further operation.**

Which devices? **Switch Actuator, Shutter Actuator and Dim Actuator**

What is it used for?
- **Maintenance purpose**
- **Blocking the normal operation in rooms that are accessable to visitors**
- **Security applications**

>>>

Room Controller RC/A 8.1

Universal Function II : Forced loop-control

How does it work?

2-Bit object for every output:

Object value	Meaning: Forced loop-control is ...
0 (binary: 00) **1** (binary: 01)	**inactive** **(normal operation is possible)**
2 (binary: 10)	**active, switch off / shutters up**
3 (binary: 11)	**active, switch on / shutters down**

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