# Room Master Premium, MDRC
# RM/S 2.1, 2CDG 110 095 R0011




The Room Master Premium is a modular installation device (MDRC) in Pro*M* design. It is intended for installation in the distribution board on 35 mm mounting rails. The assignment of the physical address as well as the parameter settings is carried out with ETS 2 from version V1.3a or higher.

The device is powered via the ABB i-bus® and does not require and additional auxiliary voltage supply.

The RM/S 2.1 is operational after connection of the bus voltage.

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**Technical data**

| | | |
|---|---|---|
| **Supply** | Bus voltage | 21…32 V DC |
| | Current consumption, bus | Maximum 24 mA (Fan-In 2) |
| | Leakage loss, bus | Maximum 500 mW |
| * The maximum power consumption of the device results from the following specifications: | Leakage loss, device | Maximum 7.65 W* |
| | KNX bus connection | 0.25 W |
| | Relay 20 A | 3.0 W |
| | Relay 16 A | 1.0 W |
| | Relay 6 A | 2.4 W |
| | Electronic outputs 0.5 A | 1.0 W |
| **Connections** | KNX | Via bus connection terminals<br>0.8 mm Ø, solid |
| | Load circuits | Screw terminals with universal head (PZ 1)<br>0.2…4 mm² stranded, 2 x (0.2…2.5 mm²)<br>0.2…6 mm² single core, 2 x (0.2…4 mm²) |
| | Ferrules without/with plastic sleeves | without: 0.25…2.5 mm²<br>with: 0.25…4 mm² |
| | TWIN ferrulese | 0.5…2.5 mm²<br>Contact pin length at least 10 mm |
| | Tightening torque | maximum 0.8 Nm |
| | Fans/valves/inputs | Screw terminal, slot head<br>0.2…2.5 mm² stranded<br>0.2…4 mm² solid core |
| | Tightening torque | maximum 0.6 Nm |
| **Operating and display elements** | Programming button/LED | for assignment of the physical address |
| **Enclosure** | IP 20 | to DIN EN 60 529 |
| **Safety class** | II | to DIN EN 61 140 |
| **Isolation category** | Overvoltage category | III to DIN EN 60 664-1 |
| | Pollution degree | 2 to DIN EN 60 664-1 |
| **KNX safety extra low voltage** | SELV 24 V DC | |
| **Temperature range** | Operation | -5 °C…+45 °C |
| | Transport | -25 °C…+70 °C |
| | Storage | -25 °C…+55 °C |
| **Ambient conditions** | Maximum air humidity | 93 %, no condensation allowed |

| | | |
|---|---|---|
| **Design** | Modular installation device (MDRC) | Modular installation device, Pro*M* |
| | Dimensions | 90 x 216 x 64.5 mm (H x W x D) |
| | Mounting width in space units | 12 modules at 18 mm |
| | Mounting depth | 64.5 mm |
| **Installation** | On 35 mm mounting rail | to DIN EN 60 715 |
| **Mounting position** | as required | |
| **Weight** | 0.7 kg | |
| **Housing/colour** | Plastic housing, grey | |
| **Approvals** | KNX to EN 50 090-1, -2 | Certification |
| **CE mark** | in accordance with the EMC guideline and low voltage guideline | |

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**Important**

The maximum permissible current of a KNX line may not be exceeded.

During planning and installation, ensure that the KNX line is correctly dimensioned.

The device features a maximum current consumption of 24 mA (Fan-In 2).

### Electronic outputs

| | | |
|---|---|---|
| **Rated values** | Number | 4, non-isolated, short-circuit proofed |
| | $U_n$ rated voltage | 24…230 V AC (50/60 Hz) |
| | $I_n$ rated current (per output pair) | 0.5 A |
| | Continuous current | 0.5 A resistive load at $T_A$ up to 20 °C<br>0.3 A resistive load at $T_A$ up to 60 °C |
| | Inrush current | Maximum 1.6 A, 10 s at $T_A$ bis 60 °C<br>$T_A$ = ambient temperature |

### Binary inputs

| | | |
|---|---|---|
| **Rated values** | Number | 18[1)] |
| | $U_n$ scanning voltage | 32 V, pulsed |
| | $I_n$ scanning current | 0.1 mA |
| | Scanning current $I_n$ at switch on | maximum 355 mA |
| | Permissible cable length | ≤ 100 m one-way,<br>at cross-section 1.5 mm² |

[1)] All binary inputs are internally connected to the same potential.

**Rated current output 6 A**

| | | |
|---|---|---|
| **Rated values** | Number | 13 contacts |
| | $U_n$ rated voltage | 250/440 V AC (50/60 Hz) |
| | $I_n$ rated current (per output) | 6 A |
| **Switching currents** | AC3* operation (cos φ = 0.45) DIN EN 60 947-4-1 | 6 A/230 V |
| | AC1* operation (cos φ = 0.8) DIN EN 60 947-4-1 | 6 A/230 V |
| | Fluorescent lighting load to DIN EN 60 669-1 | 6 A/250 V (35 µF)[2] |
| | Minimum switching performance | 20 mA/5 V<br>10 mA/12 V<br>7 mA/24 V |
| | DC current switching capacity (resistive load) | 6 A/24 V= |
| **Service life** | Mechanical endurance | > $10^7$ |
| | Electronic endurance to DIN IEC 60 947-4-1 | |
| | AC1* (240 V/cos φ = 0.8) | > $10^5$ |
| | AC3* (240 V/cos φ = 0.45) | > 1.5 x $10^4$ |
| | AC5a* (240 V/cos φ = 0.45) | > 1.5 x $10^4$ |
| **Switching times**[1] | Maximum relay position change per output and minute if only one relay is switched. | 2.683 |

[1] The specifications apply only after the bus voltage has been applied to the device for at least 10 seconds. Typical delay of the relay is approx. 20 ms.

[2] The maximum inrush-current peak may not be exceeded.

*** What do the terms AC1, AC3 and AC5a mean?**

In Intelligent Installation Systems different switching capacity and performance specifications which are dependent on the special application have become established in industrial and residential systems. These performance specifications are rooted in the respective national and international standards. The tests are defined so that typical applications, e.g. motor loads (industrial) or fluorescent lamps (residential) are simulated.

The specifications AC1 and AC3 are switching performance specifications which have become established in the industrial field.

Typical application:

AC1 – Non-inductive or slightly inductive loads, resistive furnaces (relates to switching of ohmic/resistive loads)

AC3 – Squirrel-cage motors: Stating, switching off motors during running (relates to (inductive) motor load)

AC5a – Switching of electric discharge lamps

These switching performances are defined in the standard DIN EN 60947-4-1 *Contactors and motor-starters - Electromechanical contactors and motor-starters.* The standard describes starter and/or contactors which previously preferably used in industrial applications.

**Lamp load output 6 A**

| | | |
|---|---|---|
| **Lamps** | Incandescent lamp load | 1200 W |
| **Fluorescent lamp T5 / T8** | Uncorrected | 800 W |
| | Parallel compensated | 300 W |
| | DUO circuit | 350 W |
| **Low-voltage halogen lamps** | Inductive transformer | 800 W |
| | Electronic transformer | 1000 W |
| | Halogen lamp 230 V | 1000 W |
| **Dulux lamp** | Uncorrected | 800 W |
| | Parallel compensated | 800 W |
| **Mercury-vapour lamp** | Uncorrected | 1000 W |
| | Parallel compensated | 800 W |
| **Switching performance (switching contact)** | Max. peak inrush-current $I_p$ (150 µs) | 200 A |
| | Max. peak inrush-current $I_p$ (250 µs) | 160 A |
| | Max. peak inrush-current $I_p$ (600 µs) | 100 A |
| **Number of electronic ballasts (T5/T8, single element)[1)]** | 18 W (ABB EVG 1 x 18 SF) | 10 |
| | 24 W (ABB EVG-T5 1 x 24 CY) | 10 |
| | 36 W (ABB EVG 1 x 36 CF) | 7 |
| | 58 W (ABB EVG 1 x 58 CF) | 5 |
| | 80 W (Helvar EL 1 x 80 SC) | 3 |

[1)] For multiple element lamps or other types the number of electronic ballasts must be determined using the peak inrush current of the electronic ballasts.

**Rated current output 16 A**

| | | |
|---|---|---|
| **Rated values** | Number | 1 |
| | $U_n$ rated voltage | 250/440 V AC (50/60 Hz) |
| | $I_n$ rated current | 16 A |
| **Switching currents** | AC3* operation (cos φ = 0.45) DIN EN 60 947-4-1 | 8 A/230 V |
| | AC1* operation (cos φ = 0.8) DIN EN 60 947-4-1 | 16 A/230 V |
| | Fluorescent lighting load AX to DIN EN 60 669-1 | 16 A/250 V (70 µF)[2] |
| | Minimum switching performance | 100 mA/12 V<br>100 mA/24 V |
| | DC current switching capacity (resistive load) | 16 A/24 V= |
| **Service life** | Mechanical service life | > 3 x $10^6$ |
| | Electronic endurance to DIN IEC 60 947-4-1 | |
| | AC1* (240 V/cos φ = 0.8) | > $10^5$ |
| **Switching times**[1] | Maximum relay position change per output and minute if only one relay is switched. | 313 |

[1] The specifications apply only after the bus voltage has been applied to the device for at least 10 seconds. Typical delay of the relay is approx. 20 ms.

[2] The maximum inrush-current peak may not be exceeded.

***What do the terms AC1, AC3 and AC5a mean?**

In Intelligent Installation Systems different switching capacity and performance specifications which are dependent on the special application have become established in industrial and residential systems. These performance specifications are rooted in the respective national and international standards. The tests are defined so that typical applications, e.g. motor loads (industrial) or fluorescent lamps (residential) are simulated.

The specifications AC1 and AC3 are switching performance specifications which have become established in the industrial field.

Typical application:

AC1 – Non-inductive or slightly inductive loads, resistive furnaces (relates to switching of ohmic/resistive loads)

AC3 – Squirrel-cage motors: Stating, switching off motors during running (relates to (inductive) motor load)

AC5a – Switching of electric discharge lamps

These switching performances are defined in the standard DIN EN 60947-4-1 *Contactors and motor-starters - Electromechanical contactors and motor-starters.* The standard describes starter and/or contactors which previously preferably used in industrial applications.

**Lamp load output 16 A**

| | | |
|---|---|---|
| **Lamps** | Incandescent lamp load | 2500 W |
| **Fluorescent lamp T5 / T8** | Uncorrected | 2500 W |
| | Parallel compensated | 1500 W |
| | DUO circuit | 1500 W |
| **Low-voltage halogen lamps** | Inductive transformer | 1200 W |
| | Electronic transformer | 1500 W |
| | Halogen lamp 230 V | 2500 W |
| **Dulux lamp** | Uncorrected | 1100 W |
| | Parallel compensated | 1100 W |
| **Mercury-vapour lamp** | Uncorrected | 2000 W |
| | Parallel compensated | 2000 W |
| **Switching performance (switching contact)** | Max. peak inrush-current $I_p$ (150 µs) | 400 A |
| | Max. peak inrush-current $I_p$ (250 µs) | 320 A |
| | Max. peak inrush-current $I_p$ (600 µs) | 200 A |
| **Number of electronic ballasts (T5/T8, single element)**[1)] | 18 W (ABB EVG 1 x 18 SF) | 23 |
| | 24 W (ABB EVG-T5 1 x 24 CY) | 23 |
| | 36 W (ABB EVG 1 x 36 CF) | 14 |
| | 58 W (ABB EVG 1 x 58 CF) | 11 |
| | 80 W (Helvar EL 1 x 80 SC) | 10 |

[1)] For multiple element lamps or other types the number of electronic ballasts must be determined using the peak inrush current of the electronic ballasts.

**Rated current output 20 A**

| | | |
|---|---|---|
| **Rated values** | Number | 3 |
| | $U_n$ rated voltage | 250/440 V AC (50/60 Hz) |
| | $I_n$ rated current | 20 A |
| **Switching currents** | AC3* operation (cos φ = 0.45) DIN EN 60 947-4-1 | 16 A/230 V |
| | AC1* operation (cos φ = 0.8) DIN EN 60 947-4-1 | 20 A/230 V |
| | Fluorescent lighting load AX to DIN EN 60 669-1 | 20 A/250 V (140 µF)[2] |
| | Minimum switching performance | 100 mA/12 V<br>100 mA/24 V |
| | DC current switching capacity (resistive load) | 20 A/24 V= |
| **Service life** | Mechanical service life | > $10^6$ |
| | Electronic endurance to DIN IEC 60 947-4-1 | |
| | AC1* (240 V/cos φ = 0.8) | > $10^5$ |
| | AC3* (240 V/cos φ = 0.45) | > 3 x $10^4$ |
| | AC5a* (240 V/cos φ = 0.45) | > 3 x $10^4$ |
| **Switching times**[1] | Maximum relay position change per output and minute if only one relay is switched. | 93 |

[1] The specifications apply only after the bus voltage has been applied to the device for at least 10 seconds. Typical delay of the relay is approx. 20 ms.

[2] The maximum inrush-current peak may not be exceeded.

***What do the terms AC1, AC3 and AC5a mean?**

In Intelligent Installation Systems different switching capacity and performance specifications which are dependent on the special application have become established in industrial and residential systems. These performance specifications are rooted in the respective national and international standards. The tests are defined so that typical applications, e.g. motor loads (industrial) or fluorescent lamps (residential) are simulated.

The specifications AC1 and AC3 are switching performance specifications which have become established in the industrial field.

Typical application:

AC1 – Non-inductive or slightly inductive loads, resistive furnaces (relates to switching of ohmic/resistive loads)

AC3 – Squirrel-cage motors: Stating, switching off motors during running (relates to (inductive) motor load)

AC5a – Switching of electric discharge lamps

These switching performances are defined in the standard DIN EN 60947-4-1 *Contactors and motor-starters - Electromechanical contactors and motor-starters.* The standard describes starter and/or contactors which previously preferably used in industrial applications.

**Lamp load output 20 A**

| | | |
|---|---|---|
| **Lamps** | Incandescent lamp load | 3680 W |
| **Fluorescent lamp T5 / T8** | Uncorrected | 3680 W |
| | Parallel compensated | 2500 W |
| | DUO circuit | 3680 W |
| **Low-voltage halogen lamps** | Inductive transformer | 2000 W |
| | Electronic transformer | 2500 W |
| | Halogen lamp 230 V | 3680 W |
| **Dulux lamp** | Uncorrected | 3680 W |
| | Parallel compensated | 3000 W |
| **Mercury-vapour lamp** | Uncorrected | 3680 W |
| | Parallel compensated | 3680 W |
| **Switching performance (switching contact)** | Max. peak inrush-current $I_p$ (150 µs) | 600 A |
| | Max. peak inrush-current $I_p$ (250 µs) | 480 A |
| | Max. peak inrush-current $I_p$ (600 µs) | 300 A |
| **Number of electronic ballasts (T5/T8, single element)[1)]** | 18 W (ABB EVG 1 x 18 SF) | 26[2)] |
| | 24 W (ABB EVG-T5 1 x 24 CY) | 26[2)] |
| | 36 W (ABB EVG 1 x 36 CF) | 22 |
| | 58 W (ABB EVG 1 x 58 CF) | 12[2)] |
| | 80 W (Helvar EL 1 x 80 SC) | 10[2)] |

[1)] For multiple element lamps or other types the number of electronic ballasts must be determined using the peak inrush current of the electronic ballasts.

[2)] Limited by protection with B16 automatic circuit-breakers.

| Application program | Max. number of communication objects | Max. number of group addresses | Max. number of associations |
|---|---|---|---|
| Room Master, Premium/2 | 255 | 255 | 255 |

**Note**

For a detailed description of the application program see “Room Master Premium RM/S 2.1” product manual. It is available free-of-charge at www.ABB.de/KNX.

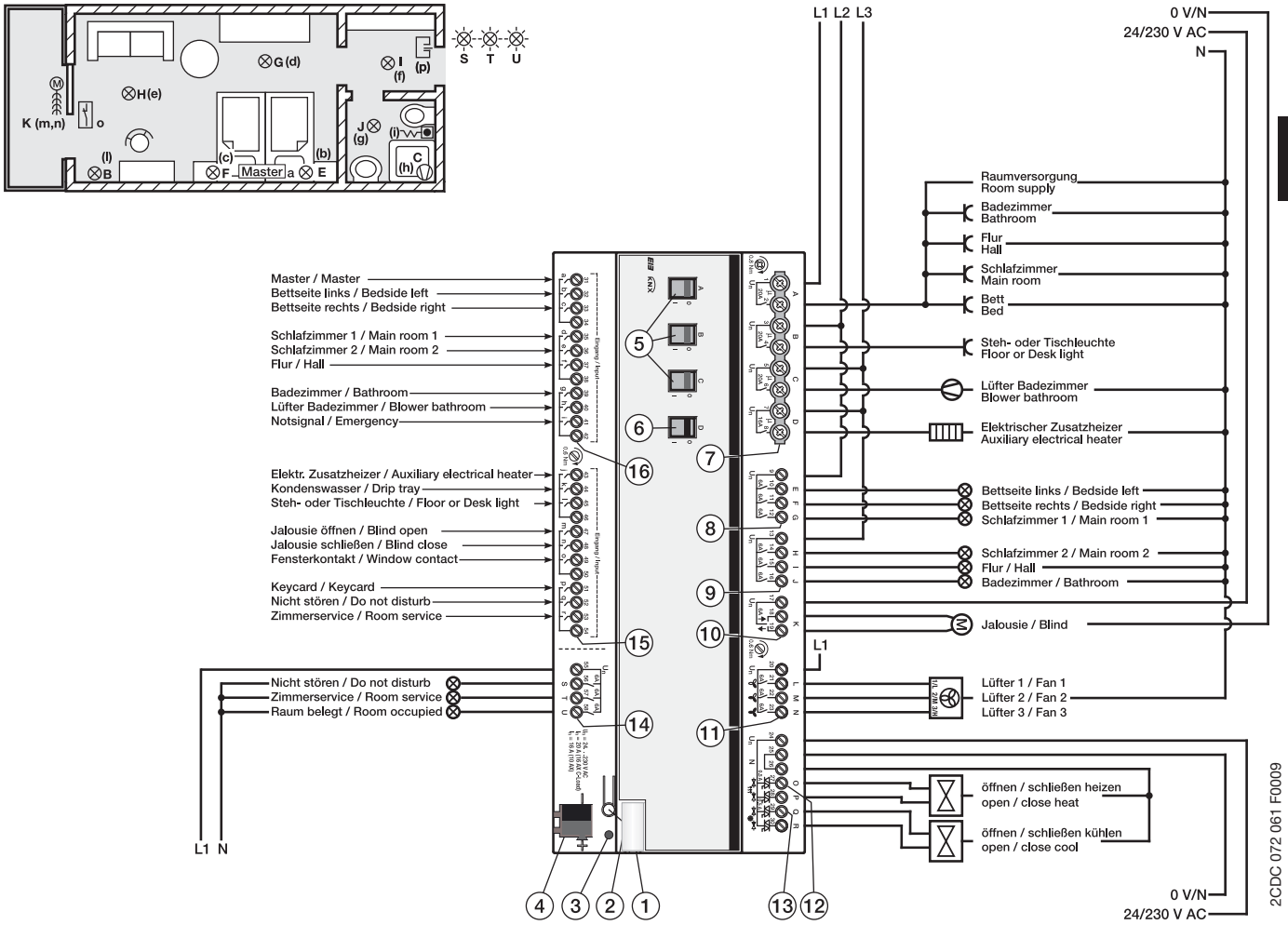
The programming requires EIB Software Tool ETS3.

If ETS3 is used, a *.VD3 or higher type file must be imported.
The application program is available in the ETS3 at ABB/Room automation, Room Master, Premium.

The device does not support the closing function of a project or the KNX device in the ETS. If you inhibit access to all devices of the project with a *BCU code* (ETS3), it has no effect on this device. Data can still be read and programmed.

**Connection schematics**

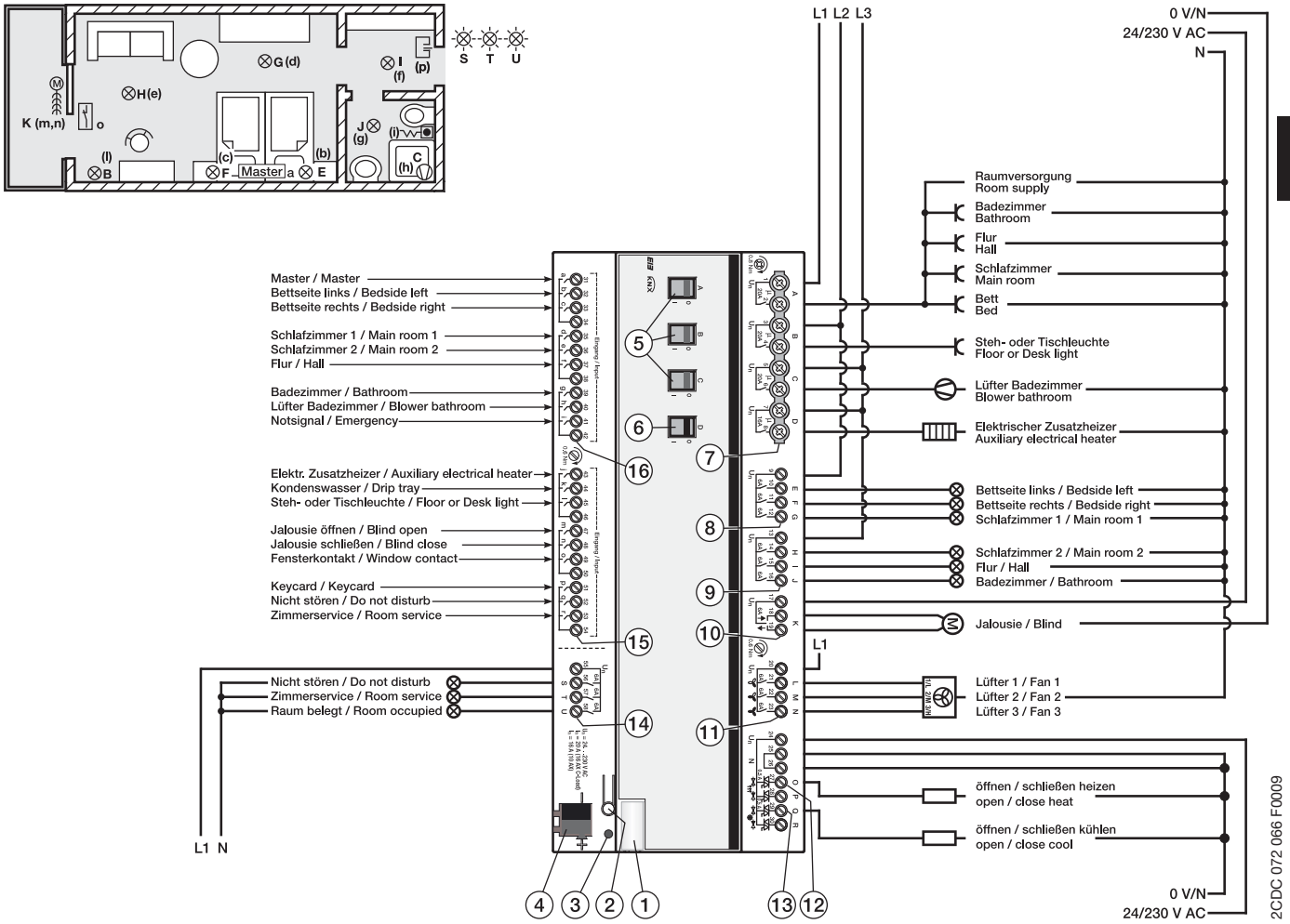
**Hotel room example**




**RM/S 2.1 with electromotor valve drives**

**1** Label carrier
**2** Programming button
**3** Programming LED
**4** Bus terminal connection
**5** Switch position display and manual operation, output (A, B, C) 20 A (16 AX)
**6** Switch position display and manual operation, output (D) 16 A (10 AX)
**7** Load circuits, with 2 terminals each
**8** Outputs, 3 contacts, 1 screw terminal for phase connection (E, F, G)
**9** Outputs, 3 contacts, 1 screw terminal for phase connection (H, I, J)
**10** Shutter (K)
**11** Fan (L, M, N)
**12** Valve HEATING (O, P)
**13** Valve COOLING (Q, R)
**14** Outputs, 3 contacts, 1 screw terminal for phase connection (S, T, U)
**15** Binary inputs (j, k, l, m, n, o, p, q, r)
**16** Binary inputs (a, b, c, d, e, f, g, h, i)

**Hotel room example**




**RM/S 2.1 with electro-thermal valve drives**

**1** Label carrier
**2** Programming button
**3** Programming LED
**4** Bus terminal connection
**5** Switch position display and manual operation, output (A, B, C) 20 A (16 AX)
**6** Switch position display and manual operation, output (D) 16 A (10 AX)
**7** Load circuits, with 2 terminals each
**8** Outputs, 3 contacts, 1 screw terminal for phase connection (E, F, G)
**9** Outputs, 3 contacts, 1 screw terminal for phase connection (H, I, J)
**10** Shutter (K)
**11** Fan (L, M, N)
**12** Valve HEATING (O, P)
**13** Valve COOLING (Q, R)
**14** Outputs, 3 contacts, 1 screw terminal for phase connection (S, T, U)
**15** Binary inputs (j, k, l, m, n, o, p, q, r)
**16** Binary inputs (a, b, c, d, e, f, g, h, i)

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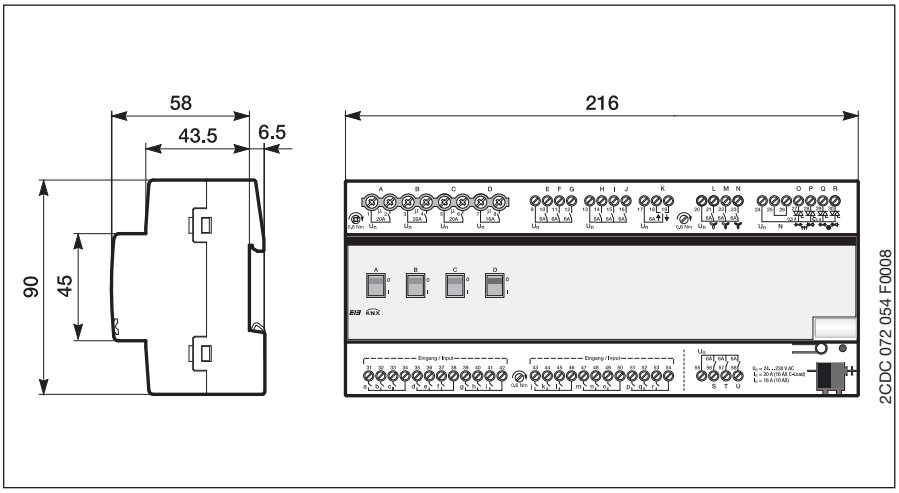
**Dimension drawing**

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**Note**



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