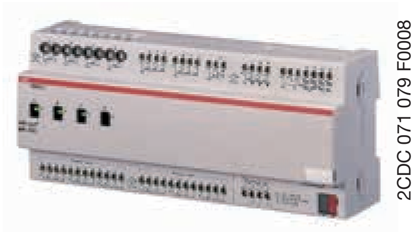
ABB i-bus® KNX
Room Master Premium, MDRC
RM/S 2.1, 2CDG 110 095 R0011



2CDC 071 079 F0008

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 addresses as well as the parameterization is carried out with the ETS and the current application program.

The RM/S 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.

Technical data

Supply	Bus voltage	21…32 V DC
	Current consumption, bus	Maximum 24 mA (Fan-In 2)
	Leakage loss, bus	Maximum 500 mW
	Leakage loss, device	Maximum 7.65 W*
* The maximum power consumption of the device results from the following specifications:	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 0.8 mm Ø, single core
	Load circuits	Screw terminal with universal head (PZ 1) 0.2…4 mm² stranded, 2 x (0.2…2.5 mm²) 0.2…6 mm² single core, 2 x (0.2…4 mm²)
	Ferrules without/with plastic sleeves	without: 0.25…2.5 mm² with: 0.25…4 mm²
	TWIN ferrules	0.5…2.5 mm² Contact pin length min. 10 mm
	Tightening torque	Maximum 0.6 Nm
	Fans/valves/inputs	Screw terminal, slot head 0.2…2.5 mm² stranded 0.2…4 mm² solid core
	Tightening torque	Maximum 0.6 Nm
Operating and display elements	Button/LED	For assignment of the physical address
Enclosure	IP 20	to EN 60 529
Safety class	II	to EN 61 140
Insulation category	Overvoltage category	III to EN 60 664-1
	Pollution degree	2 to 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

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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 EN 60 715
Mounting position	As required	
Weight	0.7 kg	
Housing/colour	Plastic housing, grey	
Approvals	KNX to EN 50 090-1, -2	Certificate
CE mark	In accordance with the EMC guideline and low voltage guideline	

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, overload-proof
	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_u up to 20 °C 0.3 A resistive load at T_u up to 60 °C
	Inrush current	Maximum 1,6 A, 10 s at T_u up to 60 °C

T_u = 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 In at switch on	Maximum 355 mA
	Permissible cable length	≤ 100 m one-way, 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	6 A
Switching currents	AC3* operation (cos φ = 0.45) To EN 60 947-4-1	6 A/230 V
	AC1* operation (cos φ = 0.8) To EN 60 947-4-1	6 A/230 V
	Fluorescent lighting load AX to EN 60 669-1	6 A/250 V (35 µF)[2]
	Minimum switching performance	20 mA/5 V 10 mA/12 V 7 mA/24 V
	DC current switching capacity (resistive load)	6 A/24 V=
Service life	Mechanical endurance	> 10^7
	Electronic endurance to 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 oh-mic/resistive loads)

AC3 – Squirrel-cage motors: Starting, switching off motors during running (relates to (inductive) mo-tor load)

AC5a – Switching of electric discharge lamps

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

Output lamp load 6 A

Lamps	Incandescent lamp load	1200 W
Fluorescent lamps 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 lamps 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)	Maximum peak inrush-current I_p (150 µs)	200 A
	Maximum peak inrush-current I_p (250 µs)	160 A
	Maximum 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 CF)	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) To EN 60 947-4-1	8 A/230 V
	AC1* operation (cos φ = 0.8) To EN 60 947-4-1	16 A/230 V
	Fluorescent lighting load AX to EN 60 669-1	16 A/250 V (70 µF)[2]
	Minimum switching performance	100 mA/12 V 100 mA/24 V
	DC current switching capacity (resistive load)	16 A/24 V=
Service life	Mechanical service life	> 3×10^6
	Electrical endurance to 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: Starting, switching off motors during running (relates to (inductive) motor load)

AC5a – Switching of electric discharge lamps

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

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Output lamp load 16 A

Lamps	Incandescent lamp load	2500 W
Fluorescent lamps 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 lamps 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)	Maximum peak inrush-current I_p (150 µs)	400 A
	Maximum peak inrush-current I_p (250 µs)	320 A
	Maximum 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 CF)	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) To EN 60 947-4-1	16 A/230 V
	AC1* operation (cos φ = 0.8) To EN 60 947-4-1	20 A/230 V
	Fluorescent lighting load AX to EN 60 669-1	20 A/250 V (140 μF)[2]
	Minimum switching performance	100 mA/12 V 100 mA/24 V
	DC current switching capacity (resistive load)	20 A/24 V=
Service life	Mechanical service life	> 10^6
	Electrical endurance	
	to 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 oh-mic/resistive loads)

AC3 – Squirrel-cage motors: Starting, switching off motors during running (relates to (inductive) mo-tor load)

AC5a – Switching of electric discharge lamps

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

Output lamp load 20 A

Lamps	Incandescent lamp load	3680 W
Fluorescent lamps 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 lamps 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)	Maximum peak inrush-current I_p (150 µs)	600 A
	Maximum peak inrush-current I_p (250 µs)	480 A
	Maximum 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.

Device type	Application program	Max. number of Communication objects	Max. number of group addresses	Max. number of associations
RM/S 2.1	Room Master, Premium/…*	255	255	255

* … = current version number of the application program. **Please observe the software information on our homepage for this purpose**.

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.com/knx*. The ETS and the current version of the device application program are required for programming.

The current version of the application program is available for download on the internet as *www.abb.com/knx*. After import it is available in the ETS under *ABB/ ABB/Room automation/Room Master/Premium.*

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

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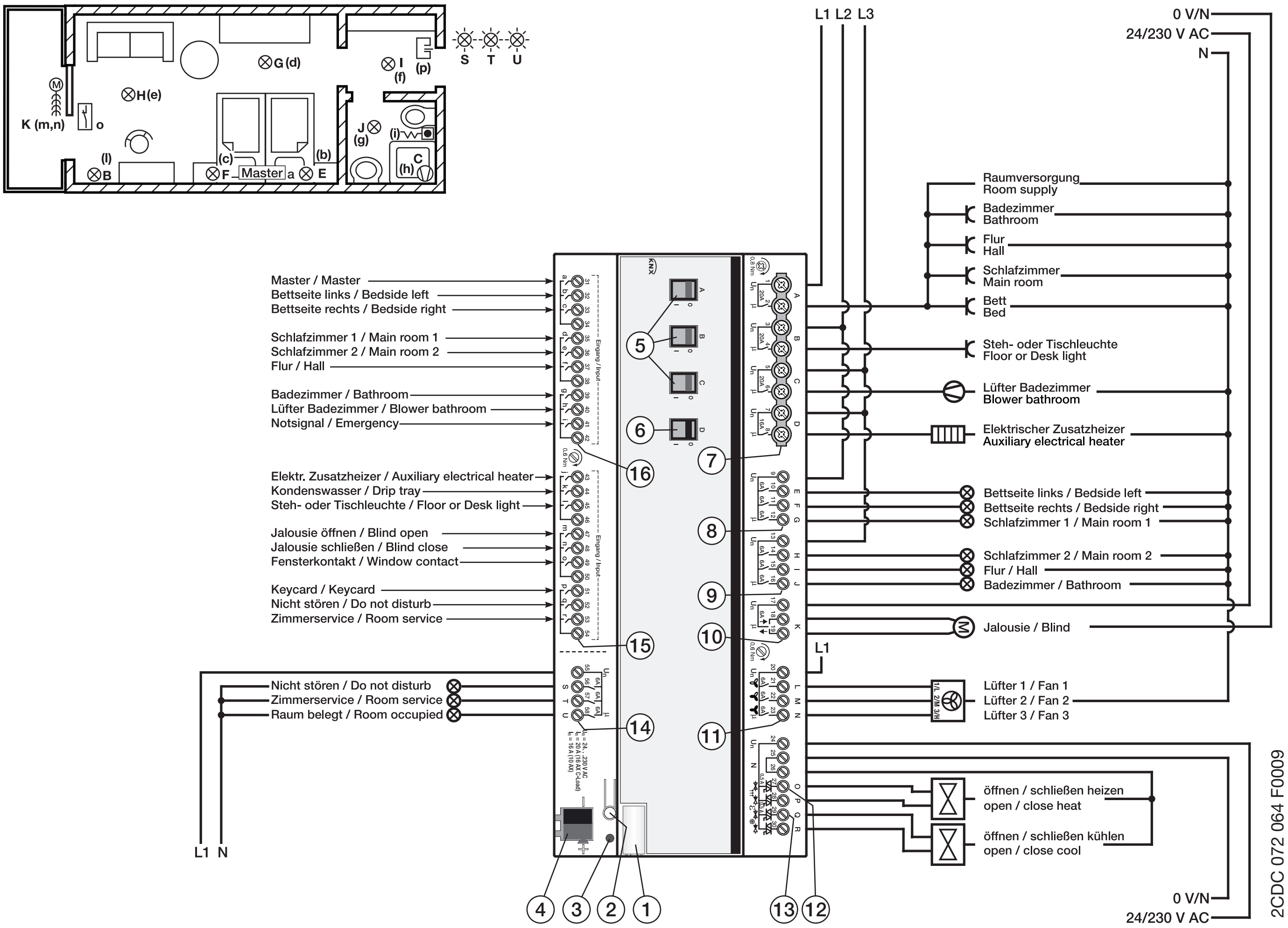
Connection schematics

Hotel room example



RM/S 2.1 with electromotor valve drives

1 Label carrier
2 Button *Programming*
3 LED *Programming* (red)
4 Bus connection terminal
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 Blind (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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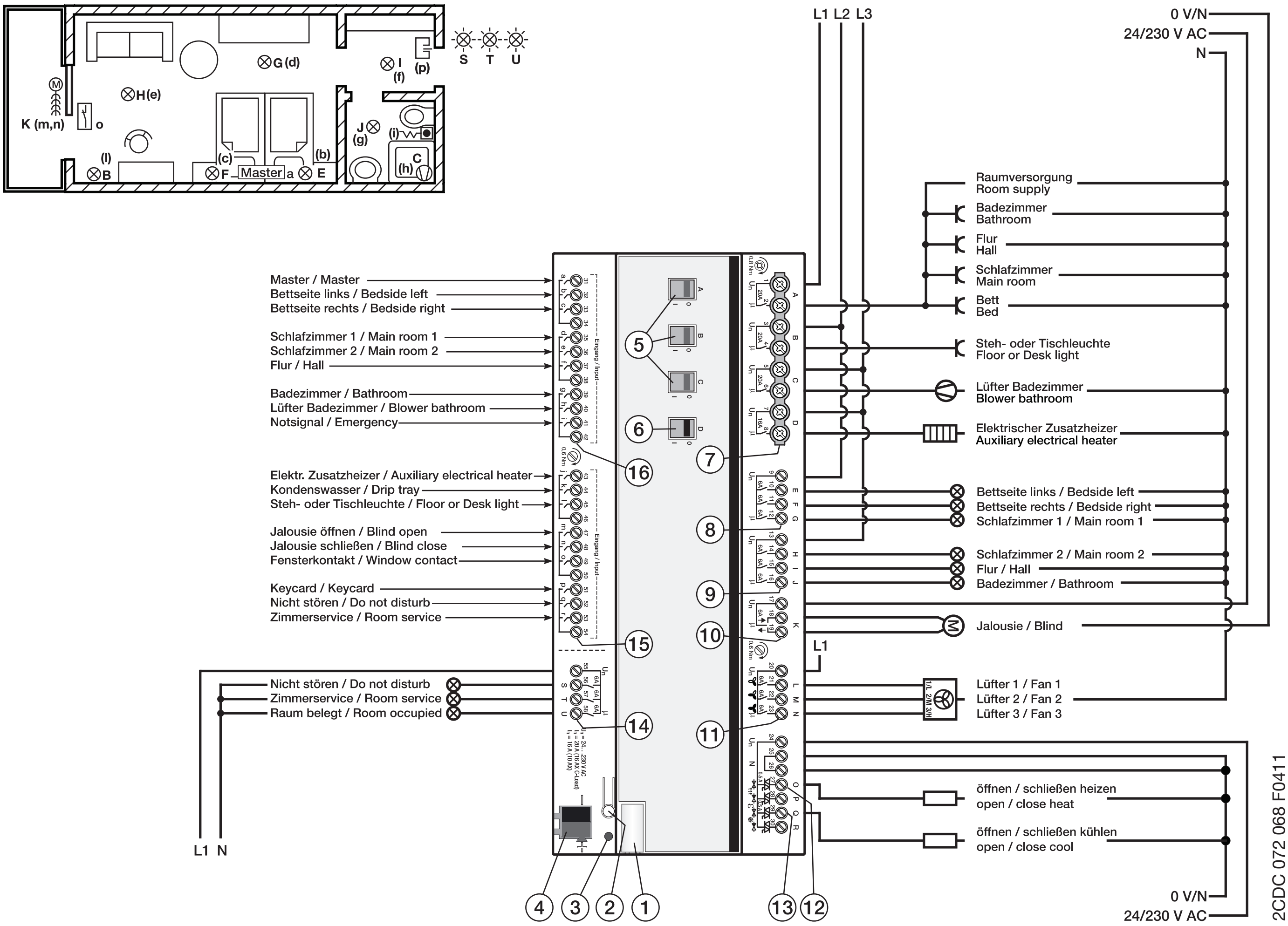
Hotel room example



RM/S 2.1 with electromotor valve drives

1 Label carrier
2 Button *Programming*
3 LED *Programming* ● (red)
4 Bus connection terminal
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 Blind (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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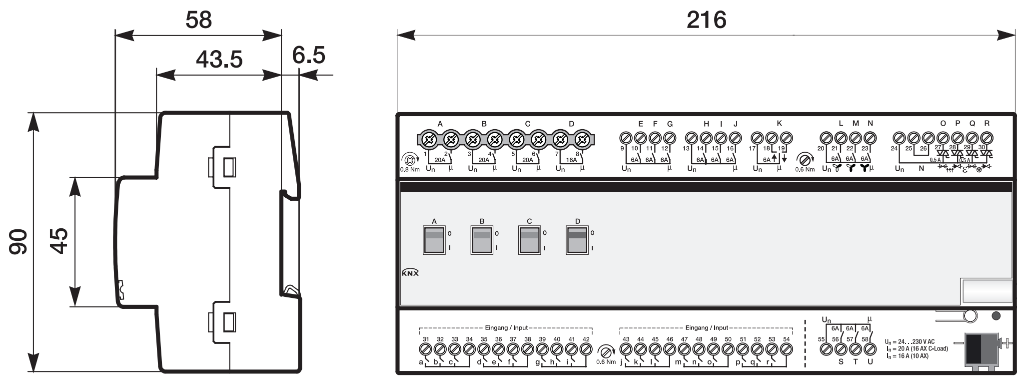
Dimension drawing



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Notes