Modular contactors for installation into distribution boards

Modular contactor for installation into distribution board

Description
Modular contactors are used for installation in consumer units in dwellings, business premises, hotels, hospitals, shopping centres, sport centers, production halls, warehouses etc.

They are used for remote switching and automatic control of electric devices and equipment, such as:
- lightning
- all types of pumps
- air-conditioning
- electric heating
- single-phase and three-phase motors

They excel in silent operation, long mechanical life time and high quality.

The contactors are designed for mounting on 35 mm mounting rail in accordance with the EN 60715 standard and they can be leaded by means of lead covers. The auxiliary contact block is available for signalization and ventilation module is available for preventing exceeded heating when contactors are used side-by-side.

All contactors have degree of protection IP20.

Besides the basic AC controlled types R20, R25, R40 and R63, types with increased silent operation RD20, RD25, RD40 and RD63 are available. Due to DC magnet and rectifier enable DC and AC voltage control. Surge arrestor is built in for over voltage protection.

Types R20-R, RD20-R, R25-R and RD25-R are upgraded versions of basic types of modular contactors. Besides basic functions they enable manual control with a handle.
Description of the handle positions:
- A: the contactor functions as an installation contactor without manual control
- O: permanently OFF
- I: manual shifting the handle from position A to I causes the contactor to close; when control voltage is applied, the handle is automatically set to position A.

Types RD20-R and RD25-R are provided with a varistor for over voltage protection and a rectifier, which enables control with AC and DC voltage.

Contactors with manual control enable:
- switching depending on tariff (selection of the most convenient tariff)
- switching when control voltage is not applied

Technical specifications according to:
EN60947-4-1; EN60947-5-1; VDE 0660, IEC 947-4-1; IEC 947-5-1

Advantages

→ Contactors RD series are universal power supply AC/DC with built-in varistor surge protection. RD contactors produce less noise (DC coil inside)

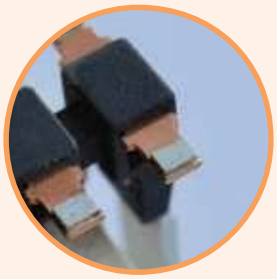
→ Special terminals provide reliable connection with cables.

→ Spring-loaded latch ensures reliable mounting on DIN rail TH 35

→ Contactors series R-R have operating mode switch:
- Automatic mode (normal operation with control circuit-coil)
- Manual mode (0 - permanently open, I - constantly closed).

In manual mode constantly close operation I presence of voltage on control circuit-coil returns contactor in automatic mode operation.

→ Contact status can be monitored visually or remote by auxiliary contacts



→ Silver contacts provide the best conductivity and lowest contact resistance

→ Spring loaded contacts to reduce bouncing effect and prolong contact life time

→ Specially designed mechanism consisting of two movable cores significantly reduces the noise level at switching

Modular contactors for installation into distribution boards - type R

2-pole, 1 module (17,5 mm), 20 A (AC1, 230V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
R 20-20 230V	002461210		130	12
R 20-20 24 V	002461211		130	12
R 20-11 230 V	002461220		130	12
R 20-11 24 V	002461221		130	12
R 20-02 230 V	002461230		130	12
R 20-02 24 V	002461231		130	12

1-pole, 1 module (17,5 mm), 25 A (AC1, 230V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
R 25-10-24V	002463507		130	12
R 25-10-230V	002463500		130	12
2-pole, 1 module (17,5 mm), 25 A (AC1, 230V)				
R 25-20-24V	002463501		130	12
R 25-20 230V	002463502		130	12
R 25-11 24V	002463503		130	12
R 25-11 230V	002463504		130	12
R 25-02 24V	002463505		130	12
R 25-02 230V	002463506		130	12

4-pole, 2 modules (35 mm), 25 A (AC1, 400 V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
R 25-40 230 V	002462310		220	6
R 25-40 24 V	002462311		220	6
R 25-31 230 V	002462320		220	6
R 25-31 24 V	002462321		220	6
R 25-13 230 V	002462330		220	6
R 25-13 24 V	002462331		220	6
R 25-22 230 V	002462340		220	6
R 25-22 24 V	002462341		220	6
R 25-04 230 V	002462350		220	6
R 25-04 24 V	002462351		220	6

4-pole, 3 modules (52,5 mm), 40 A (AC1, 400 V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
R 40-40 230 V	002463410		360	4
R 40-40 24 V	002463411		360	4
R 40-31 230 V	002463420		360	4
R 40-31 24 V	002463421		360	4
R 40-22 230 V	002463430		360	4
R 40-22 24 V	002463431		360	4
R 40-04 230 V	002463440		360	4
R 40-04 24 V	002463441		360	4

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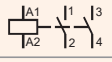
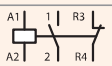
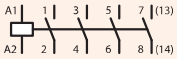
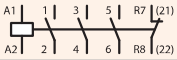
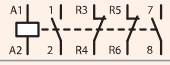
Modular contactors for installation into distribution boards - type R

2 pole, 2 modules (35 mm), 63 A(AC1, 400 V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
R 63-20 230V	002463482		240	6/60
R 63-20 24V	002463483		240	6/60
R 63-11 230V	002463484		240	6/60
R 63-11 24V	002463485		240	6/60

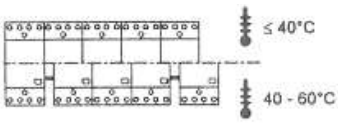
4 pole, 3 modules (52,5mm), 63 A(AC1, 400 V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
R 63-40 230 V	002463450		360	4
R 63-40 24 V	002463451		360	4
R 63-31 230 V	002463460		360	4
R 63-31 24 V	002463461		360	4
R 63-22 230 V	002463470		360	4
R 63-22 24 V	002463471		360	4
R 63-04 230 V	002463480		360	4
R 63-04 24 V	002463481		360	4

Auxiliary contactor block for contactors R25, R40, R63 (max. 1 piece)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
RH 11	002461101		26	3

Sealing cover				
Type	Code No.	For use with	Weight [g]	Packaging [pcs]
P721	002461110	R 25	2	10
P690	002461120	R 40…, R 63…	3	10

Distance piece				
Type	Code No.	For use with	Weight [g]	Packaging [pcs]
P730	002461130	R20-R63	12	10

Distance piece



Distance piece is used where ambient temperature is higher than 40°C. Piece width is 1/2 module (8,8 mm)

Max 3 contactors can be side by side - use of distance piece is highly recommended.

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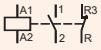
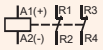
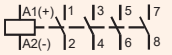
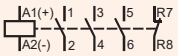
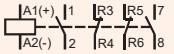
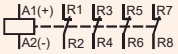
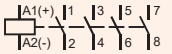
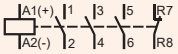
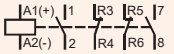
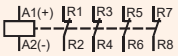
1-pole, 1 module (17,5 mm), 20 A (AC1, 230 V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
RD 20-10-230V AC/DC	002464000		130	10
RD 20-10-24V AC/DC	002464001			
RD 20-01-230V AC/DC	002464002			
RD 20-01-24V AC/DC	002464003			
2-pole, 1 module (17,5 mm), 20 A (AC1, 230 V)				
RD 20-20-230V AC/DC	002464004		130	10
RD 20-20-24V AC/DC	002464005			
RD 20-11-230V AC/DC	002464006			
RD 20-11-24V AC/DC	002464007			
RD 20-02-230V AC/DC	002464008			
RD 20-02-24V AC/DC	002464009			

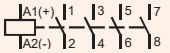
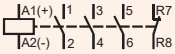
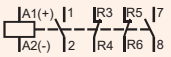
Take care of dissipated heat by: ≤ 40 °C max. 3 modules side by side
40 - 55 °C max. 2 modules side by side.
For more contactors together, use distance piece IKV

4-pole, 2 modules (35 mm), 25 A (AC1, 400 V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
RD 25-40-230V AC/DC	002464010		240	5
RD 25-40-24V AC/DC	002464011			
RD 25-31-230V AC/DC	002464012			
RD 25-31-24V AC/DC	002464013			
RD 25-22-230V AC/DC	002464014			
RD 25-22-24V AC/DC	002464015			
RD 25-04-230V AC/DC	002464016			
RD 25-04-24V AC/DC	002464017			

Take care of dissipated heat by: ≤ 40 °C max. 3 modules side by side
40 - 55 °C max. 2 modules side by side.
For more contactors together, use distance piece IKV

4-pole, 3 modules (52,5 mm), 40 A (AC1, 400 V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
RD 40-40-230V AC/DC	002464018		420	5
RD 40-40-24V AC/DC	002464019			
RD 40-31-230V AC/DC	002464020			
RD 40-31-24V AC/DC	002464021			
RD 40-22-230V AC/DC	002464022			
RD 40-22-24V AC/DC	002464023			
RD 40-04-230V AC/DC	002464024			
RD 40-04-24V AC/DC	002464025			

Take care of dissipated heat by: ≤ 40 °C max. 3 modules side by side
40 - 55 °C max. 2 modules side by side.
For more contactors together, use distance piece IKV

4 pole, 3 modules (52,5mm), 63 A(AC1, 400 V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
RD 63-40-230V AC/DC	002464026		420	5
RD 63-40-24V AC/DC	002464027			
RD 63-31-230V AC/DC	002464028			
RD 63-31-24V AC/DC	002464029			
RD 63-22-230V AC/DC	002464030			
RD 63-22-24V AC/DC	002464031			

Take care of dissipated heat by: ≤ 40 °C max. 3 modules side by side
40 - 55 °C max. 2 modules side by side.
For more contactors together, use distance piece IKV

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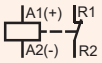
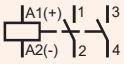
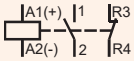
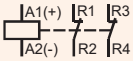
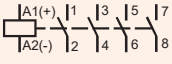
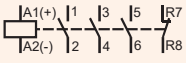
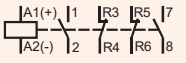
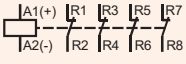
Modular contactors for installation into distribution boards - type RD, R...R, RD...R

1-pole, ON - OFF - AUTO, 1 module (17,5 mm), 20 A (AC1, 230V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
R 20-10-R-230V AC	002464032		130	10
R 20-10-R-24V AC	002464033			
RD 20-10-R-230V AC/DC	002464034			
RD 20-10-R-24V AC/DC	002464035			
R 20-01-R-230V AC	002464036			
R 20-01-R-24V AC	002464037			
RD 20-01-R-230V AC/DC	002464038			
RD 20-01-R-24V AC/DC	002464039			
2-pole, ON - OFF - AUTO, 1 module (17,5 mm), 20 A (AC1, 230V)				
R 20-20-R-230V AC	002464040		130	10
R 20-20-R-24V AC	002464041			
RD 20-20-R-230V AC/DC	002464042			
RD 20-20-R-24V AC/DC	002464043			
R 20-11-R-230V AC	002464044			
R 20-11-R-24V AC	002464045			
RD 20-11-R-230V AC/DC	002464046			
RD 20-11-R-24V AC/DC	002464047			
R 20-02-R-230V AC	002464048			
R 20-02-R-24V AC	002464049			
RD 20-02-R-230V AC/DC	002464050			
RD 20-02-R-24V AC/DC	002464051			

Take care of dissipated heat by: ≤ 40 °C max. 3 modules side by side
40 - 55 °C max. 2 modules side by side.
For more contactors together, use distance piece IKV

4-pole, ON - OFF - AUTO, 2 modules (35 mm), 25 A (AC1, 400 V)				
Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
R 25-40-R-230V AC	002464052		240	5
R 25-40-R-24V AC	002464053			
RD 25-40-R-230V AC/DC	002464054			
RD 25-40-R-24V AC/DC	002464055			
R 25-31-R-230V AC	002464056			
R 25-31-R-24V AC	002464057			
RD 25-31-R-230V AC/DC	002464058			
RD 25-31-R-24V AC/DC	002464059			
R 25-22-R-230V AC	002464060			
R 25-22-R-24V AC	002464061			
RD 25-22-R-230V AC/DC	002464062			
RD 25-22-R-24V AC/DC	002464063			
R 25-04-R-230V AC	002464064			
R 25-04-R-24V AC	002464065			
RD 25-04-R-230V AC/DC	002464066			
RD 25-04-R-24V AC/DC	002464067			

Take care of dissipated heat by: ≤ 40 °C max. 3 modules side by side
40 - 55 °C max. 2 modules side by side.
For more contactors together, use distance piece IKV

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Auxiliary contactor block for contactors RD, R...R, RD...R

Type	Code No.	Wiring diagram	Weight [g]	Packaging [pcs]
RN-20	002464068	13 23 14 24	30	1
RN-02	002464069	11 21 12 22	30	1
RN-11	002464070	13 21 14 22	30	1

* The auxiliary switch should not be applied in combination with RD20 and RD20-R.

Sealing cover

Type	Code No.	For use with	Weight [g]	Packaging [pcs]
SC20	002464071	RD 20, R20...R	3	2
SC25	002464072	RD 25, R25...R	4	2
SC40/63	002464073	RD 40, RD 60	5	2

Distance piece

Type	Code No.	For use with	Weight [g]	Packaging [pcs]
IKV	002464074	RD, R...R	6	1

Technical data on page 252

Modular contactor for installation into distribution boards

Data according to IEC 947-4-1, IEC 947-5-1, VDE 0660, EN 60947-4-1, EN 60947-5-1								
Type			**R20**	**R25 (2p)**	**R25 (4p)**	**R40**	**R63**	**RH11**
Main Contacts								
Rated insulation voltage U_i		V AC	440[2)]	440[2)]	440[2)]	440[2)]	440[2)]	440[2)]
Rated operation voltage U_e		V AC	250	440	440	440	440	440
Frequency of operations with AC1, AC3		1/h	300	300	300	600	600	600
Mechanical life		S x 10^6	1	1	1	1	1	1
Utilization category AC1								
Rated operational current I_e (=I_{th})	open at 60°C	A	20	25	25	40	60	-
Contact life		S x 10^6	0,1	0,1	0,1	0,1	0,1	-
Minimum switch voltage		V/mA	24/100	24/100	24/100	24/100	24/100	17/5
Short time current	10s-current	A	72	72	72	216	240	-
Power loss per pole at I_e/AC1		W	2	3	2	3	7	0,5
Utilization category AC3 Switching of three-phase motors								
Rated operational current I_e		A	-	-	9	27	30	-
Rated operational power	220V	kW	-	-	2,2	7,5	8	-
of three-phase motors	230-240V	kW	1,1[4)]		2,5	8	8,5	-
50-60Hz	380-415V	kW	-	-	4	12,5	15	-
Contact life AC 3		S x 10^6	-	-	0,15	0,15	0,15	-
Power consumption of coils								
AC operated	inrush	VA	7-9	7-9	14-18	33-45	33-45	-
	sealed	VA	2,2-4,2	2,2-4,2	4,4-8,4	7	7	-
		W	0,8-1,6	0,8-1,6	1,6-3,2	2,6	2,6	
Operation range of coils in multiples of control voltage Us	(-40...+40°C)		0,85-1,1	0,85-1,1	0,85-1,1	0,85-1,1	0,85-1,1	-
Short-circuit protection								
Coordination-type "1" according to IEC 947-4-1 max. fuse size	gG/gL	A	35	35	35	63	80	-
Cable cross-sections								
Main connector	solid or stranded	mm^2	1,5-10	1,5-10	1,5-10	2,5-25	2,5-25	0,5-2,5[3)]
	flexible	mm^2	1,5-6	1,5-6	1,5-6	2,5-16	2,5-16	0,5-2,5[3)]
	flexible with multicore cable end	mm^2	1,5-6	1,5-6	1,5-6	2,5-16	2,5-16	0,5-1,5
Clamps per pole			1	1	1	1	1	2
Magnetic coil	solid or stranded	mm^2	0,75-2,5	0,75-2,5	0,75-2,5	0,75-2,5	0,75-2,5	-
	flexible	mm^2	0,5-2,5	0,5-2,5	0,5-2,5	0,5-2,5	0,5-2,5	-
	flexible with multicore cable end	mm^2	0,5-1,5	0,5-1,5	0,5-1,5	0,5-1,5	0,5-1,5	-
Clamps per pole			1	1	1	1	1	-
Auxiliary Contacts								
Rated insulation voltage U_i[1)]		V AC	-	-	-	-	-	440[2)]
Thermal rated current I_{th}	40°C	[A]	-	-	-	-	-	10
Ambient temperature	60°C	[A]	-	-	-	-	-	6
Utilization category AC 15								
Rated operational current I_e	220-240V	[A]	-	-	-	-	-	3
	380-415V	[A]	-	-	-	-	-	2
	440V	[A]	-	-	-	-	-	1,6
Utilization category DC13								
Rated operational current I_e per pole	24-60V	[A]	-	-	-	-	-	2
	110V	[A]	-	-	-	-	-	0,4
	220V	[A]	-	-	-	-	-	0,1
Short circuit protection								
short-circuit current 1kA, contact welding not accepted max. fuse size	gG/gL	[A]	-	-	-	-	-	10
Switching time at control voltage U_s±10%								
	make time	ms	7-16	7-16	9-15	11-15	11-15	-
	release time		6-12	6-12	4-8	6-13	6-13	-
	arc duration		10-15	10-15	10-15	10-15	10-15	-

1) Suitable for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): U_{imp} 8kV.
2) Suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): U_{imp} 4kV.
3) Maximum cable cross-section with prepared conductor.
4) AC5b motor 2-pole 230 V 1,1 kW.

Switching of Lamps

Lamp Type	Power [W]	Current [A]	Capacitors µF	Max. lamps per pole at 230V 50Hz R20	R25	R40	R63
Incandescent lamps	60	0,27	-	22	28	58	85
	100	0,45	-	13	17	35	51
	200	0,91	-	7	8	17	25
	300	1,36	-	4	5	11	16
	500	2,27	-	3	3	7	10
	1000	4,5	-	1	1	3	5
Fluoroscent lamps, uncompensated or serial compensated	11	0,16	-	60	75	210	310
	18	0,37	2,7	25	30	90	140
	24	0,35	2,5	25	30	90	140
	36	0,43	3,4	20	25	70	140
	58	0,67	5,3	14	17	45	70
	65	0,67	5,3	13	16	40	65
	85	0,8	-	11	14	35	60
Fluoroscent lamps, dual-connection	11	0,07	-	2x100	2x110	2x220	2x250
	18	0,11	-	2x50	2x55	2x130	2x200
	24	0,14	-	2x40	2x44	2x110	2x160
	36	0,22	-	2x30	2x33	2x70	2x100
	58	0,35	-	2x20	2x22	2x45	2x70
	65	0,35	-	2x15	2x16	2x40	2x60
	85	0,47	-	2x10	2x11	2x30	2x40
Fluoroscent lamps, parallel compensated	11	0,16	2,0	30	30	100	140
	18	0,37	2,0	20	20	70	90
	24	0,35	3,0	15	15	55	75
	36	0,43	4,5	10	10	38	51
	58	0,67	7,0	6	6	25	30
	65	0,67	7,0	5	5	24	28
	85	0,8	8,0	4	4	18	23
Fluoroscent lamps, with serial electronic	18	0,09	-	40	40	100	150
	36	0,16	-	20	20	50	75
	58	0,25	-	15	15	30	55
	2x18	0,17	-	2x20	2x20	2x50	2x60
	2x36	0,32	-	2x10	2x10	2x25	2x30
	2x58	0,49	-	2x7	2x7	2x15	2x20
Transformers for metal halid low voltage lamps	20		-	40	52	110	174
	50		-	20	24	50	80
	75		-	13	16	35	54
	100		-	10	12	27	43
	150		-	7	9	19	29
	200		-	5	5	14	23
	300		-	3	4	9	14
Mercury-vapour lamps (high pressure lamps), uncompensated e. g. HQL, HPL	50	0,61	-	16	18	38	55
	80	0,8	-	12	14	28	40
	125	1,15	-	8	9	20	28
	250	2,15	-	4	5	11	15
	400	3,25	-	3	4	7	10
	700	5,4	-	1	2	4	6
	1000	7,5	-	1	1	3	4
Mercury-vapour lamps (high pressure lamps), compensated e. g. HQL, HPL	50	0,28	7	7	7	32	46
	80	0,41	8	5	5	25	35
	125	0,65	10	3	3	16	22
	250	1,22	18	2	2	8	12
	400	1,95	25	1	1	5	7
	700	3,45	45	1	1	3	4
	1000	4,8	60	-	-	2	3

Switching of Lamps

Lamp Type	Power [W]	Current [A]	Capacitors µF	Max. lamps per pole at 230V 50Hz R20	R25	R40	R63
Metal halide lamps uncompensated e. g. HQI, HPI, CDM	35	0,53	-	22	24	45	65
	70	1	-	12	14	24	35
	150	1,8	-	6	8	13	18
	250	3	-	4	5	8	12
	400	3,5	-	3	4	6	10
	1000	9,5	-	1	1	2	4
	2000	16,5	-	-	-	1	2
400 V per pole	2000	10,5	-	-	-	1	2
	3500	18	-	-	-	-	1
Metal halide lamps compensated e. g. HQI, HPI	35	0,25	6	8	8	38	50
	70	0,45	12	4	4	20	28
	150	0,75	20	2	2	12	17
	250	1,5	33	1	1	7	10
	400	2,1	35	1	1	5	7
	1000	5,8	95	-	-	2	3
	2000	11,5	148	-	-	1	1
400 V per pole	2000	6,5	58	-	-	1	2
	3500	11,6	100	-	-	-	1
Metal halide lamps with serial electronic (e.g. PCI) 50 -125 x I_{nlamps} for 0,6 ms	20	0,1	integrated	9	9	18	20
	35	0,2	integrated	6	6	11	13
	70	0,36	integrated	5	5	10	12
	150	0,7	integrated	4	4	8	10
Sodium-vapour lamps (low pressure lamps), uncompensated	35	1,5	-	7	9	22	30
	55	1,5	-	7	9	22	30
	90	2,4	-	4	6	13	19
	135	3,5	-	3	4	10	13
	150	3,3	-	3	4	10	13
	180	3,3	-	3	4	10	13
	200	3,3	-	3	4	10	13
Sodium-vapour lamps (low pressure lamps), compensated	35	0,31	20	3	3	12	16
	55	0,42	20	2	2	8	14
	90	0,63	30	1	1	5	9
	135	0,94	45	1	1	3	6
	150	1	40	1	1	3	6
	180	1,16	40	1	1	2	5
	200	1,32	25	-	-	2	4
Sodium-vapour lamps (high pressure lamps), uncompensated	150	1,8	-	5	6	11	22
	250	3	-	4	5	7	13
	330	3,7	-	3	4	6	10
	400	4,7	-	2	2	5	8
	1000	10,3	-	1	1	2	4
Sodium-vapour lamps (high pressure lamps), compensated	150	0,83	20	2	2	7	14
	250	1,5	33	1	1	4	8
	330	2	40	1	1	3	6
	400	2,4	48	1	1	2	5
	1000	6,3	106	-	-	1	2
Sodium-vapour lamps (high pressure lamps) with serial electronic (e.g. PCI) 50-125 x I_{nlamps} for 0,6 ms	20	0,1	integrated	9	9	18	20
	35	0,2	integrated	6	6	11	13
	70	0,36	integrated	5	5	10	12
	150	0,7	integrated	4	4	8	10
LED Lamps	max. inrush current of contactor [A]			195	233	424	565

Data according to IEC 947-4-1, IEC 947-5-1, VDE 0660, EN 60947-4-1, EN 60947-5-1

Type						RD20	RD25	RD40	RD63
General	Standards					IEC/EN 61095 , IEC/EN 60947-4-1, IEC/EN 60947-5-1			
	Module width					1	2	3	
	Mechanical endurance				op. c.	3 x 106		3 x 106	
	Ambient temperature				°C	-5 … +55			
	Storage temperature				°C	-30 … +80			
	No. of contactors (side-by-side)		≤ 40 °C			max. 3			
			40 - 55 °C			max. 2			
	Contact reliability					17 V; ≥ 50 mA			
	Min. distance of open contacts				mm	3,6			
	Power dissipation per pole				W	1,7	2,2	4	8
	Overload current withstand capability				A	72	68	176	240
	Max. back-up fuse for short-circuit protection gL			Iv	A	20	25	63	80
	Coordination type 2								
	Max. operating frequency	DC-1			op. c./h	300			
		AC-1/AC-3/AC-5b/AC-6b				600			
		AC-15				1200			
		no load				3000			
	Weight				kg	0,13	0,24	0,42	
Main circuit	Rated insulation voltage			Ui	V	230	440		
	Rated impulse withstand voltage			Uimp	kV	4			
	Thermal current			Ith	A	20	25	40	63
	Rated operational voltage			Ue	V	230	400		
	Rated frequency			f	Hz	50/60			
	Rated operational current	AC-1/AC-7a		Ie	A	20	25	40	63
	Operational power AC-1/AC-7a	single-phase	230 V			4	5,4	8,7	13,3
		three-phase	230 V	Pe	kW	-	9	16	24
		three-phase	400 V			-	16	26	40
	Electrical endurance	AC-1/AC-7a			op. c.	200.000		100.000	
	Rated operational current	AC-3/AC-7b		Ie	A	9	8,5	22	30
	Operational power AC-3/AC-7b	single-phase motor	230 V			1.3 -> NO [1]	1.3 [2]	3.7 [2]	5 [2]
		three-phase motor	230 V	Pe	kW	-	2,2	5,5	8,5
		three-phase motor	400 V			-	4	11	15
	Electrical endurance	AC-3/AC-7b			op. c.	300.000	500.000	150.000	
	Switching of capacitors	AC-6b	230 V	C	µF	30	36	220	330
	Electrical endurance	AC-6b			op. c.	100.000			

1) Make contacts are marked NO
2) Data for single-phase power are valid for versions -22, -20 and -02

LED lamps, Power supplies for LEDs

RD20, RD20-R, R20-R	RD25, RD25-R, R25-R	RD40	RD63
max. 2,4 A per pole	max. 3,8 A per pole	max. 11 A per pole	max. 18 A per pole

Technical data

Type						RD20	RD25	RD63	RD63
Main circuit	Rated operational current	DC-1							
	1 pole		Ue = 24 V DC			20	25	40	63
			Ue = 110 V DC	Ie	A	6	6	4	4
			Ue = 220 V DC			0,6	0,6	1,2	1,2
	2 poles connected in series		Ue = 24 V DC			20	25	40	63
			Ue = 110 V DC	Ie	A	10	10	10	10
			Ue = 220 V DC			6	6	8	8
	3 poles connected in series		Ue = 24 V DC			-	25	40	63
			Ue = 110 V DC	Ie	A	-	20	30	35
			Ue = 220 V DC			-	15	20	30
	4 poles connected in series		Ue = 24 V DC			-	25	40	63
			Ue = 110 V DC	Ie	A	-	20	40	63
			Ue = 220 V DC			-	15	40	63
	Electrical endurance	DC-1			op. c.	100.000			
	Terminal capacity		rigid	S	mm^2	1 … 10		1.5 … 25	
			flexible			1 … 6		1.5 … 16	
	Screw					M3.5		M5	
	Screw Head					PZ1		PZ2	
	Tightening torque				Nm	1,2		3,5	
Auxiliary circuit	Rated operational voltage			Ue	V	230	400	400	400
	Rated insulation voltage			Ui	V	230	440	440	440
	Rated impulse withstand voltage			Uimp	kV	4			
	Thermal current			Ith	A	20	25	40	63
	AC-15								
	Rated operational current	single-phase	230 V	Ie	A	6			
		single-phase	400 V			-	4		
	Electrical endurance	AC-15			op. c.	300.000	500.000	150.000	
Control circuit	Range of control voltage			Uc	%	85 … 110			
	Control voltages			Uc	V	12 … 230			
	Surge immunity test (1.2/50 µs), acc. to IEC/EN 61000-4-5				kV	2			
	Coil consumption		switch-on		VA/W	2.1/2.1	2.6/2.6 [3)]	5/5	5/5
			operation			2.1/2.1	2.6/2.6 [3)]	5/5	5/5
	Make/break delays		make		ms	15 – 45	15 – 45	15 – 20	15 – 20
			break			20 – 50	20 – 70	35 – 45	35 – 45
	Terminal capacity		rigid	S	mm^2	1 … 2.5		1 … 2.5	
			flexible			1 … 2.5		1 … 2.5	
	Screw					M 3.5		M3	
	Screw head					PZ1			
	Tightening torque				Nm	0,6			

3) Coil consumption for version -04 is 3.8 VA/3.8 W

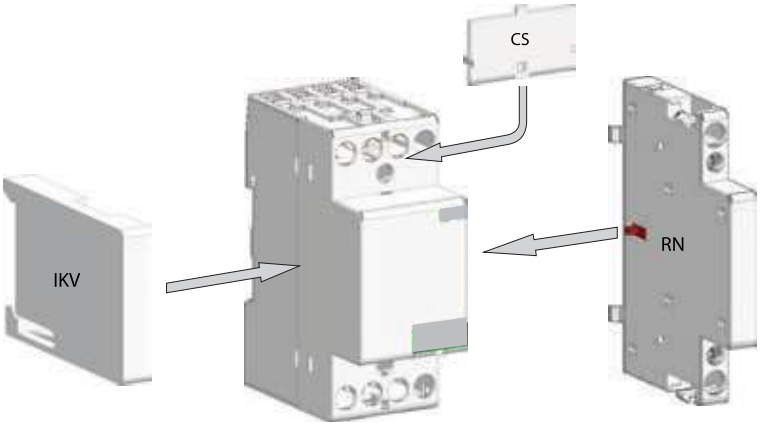
Data according to IEC 947-4-1, IEC 947-5-1, VDE 0660, EN 60947-4-1, EN 60947-5-1

Type						R 20-R	RD 20-R	R 25-R	R D25-R
General	Standards					IEC/EN 61095 , IEC/EN 60947-4-1, IEC/EN 60947-5-1			
	Module width					1		2	
	Mechanical endurance				op. c.	3 x 106			
	Ambient temperature				°C	-5 . . . +55			
	Storage temperature				°C	-30 . . . +80			
	No. of contactors (side-by-side)		≤ 40 °C			max. 3	max. 3	no limit	max. 3
			40 - 55 °C			max. 2	max. 2		max. 2
	Contact reliability					17 V; ≥ 50 mA			
	Min. distance of open contacts				mm	3,6			
	Power dissipation per pole				W	1,7	1,7	2,2	2,2
	Overload current withstand capability				A	72	72	68	68
	Max. back-up fuse for short-circuit protection gL Coordination type 2			Iv	A	20	20	25	25
	Max. operating frequency	DC-1			op. c./h	300			
		AC-1/AC-3/AC-5b/AC-6b				600			
		AC-15				1200			
		no load				3000			
	Weight				kg	0,13	0,13	0,24	0,24
Main circuit	Rated insulation voltage			Ui	V	230		440	
	Rated impulse withstand voltage			Uimp	kV	4			
	Thermal current			Ith	A	20	20	25	25
	Rated operational voltage			Ue	V	230	230	400	400
	Rated frequency			f	Hz	50/60			
	Rated operational current	AC-1/AC-7a		Ie	A	20	20	25	25
	Operational power AC-1/AC-7a	single-phase	230 V			4	4	5,4	5,4
		three-phase	230 V	Pe	kW	-	-	9	9
		three-phase	400 V			-	-	16	16
	Electrical endurance	AC-1/AC-7a			op. c.	200.000			
	Electrical endurance	AC-3/AC-7b			op. c.	300.000	500.000	150.000	
	Switching of capacitors								
		AC-6b	230 V	C	µF	30	30	36	36
	Electrical endurance	AC-6b			op. c.	100.000			
	Rated operational current	AC-1/AC-7a		Ie	A	9	9	8,5	8,5
	Operational power AC-3/AC-7b	single-phase motor	230 V	Pe	kW	1.3 only for NO [1]	1.3 only for NO [1]	1.3 [2]	1.3 [2]
		three-phase motor	230 V			-	-	2,2	2,2
		three-phase motor	400 V			-	-	4	4
	Electrical endurance	AC-3/AC-7b			op. c.	300.000		500.000	
	Switching of capacitors								
		AC-6b	230 V	C	µF	30	30	36	36
	Electrical endurance	AC-6b			op. c.	100.000			

1) Make contacts are marked NO
2) Data for single-phase power are valid for versions -22, -20 and -02

Technical data

Type						R 20-R	RD 20-R	R 25-R	RD 25-R
Main circuit	Rated operational current	DC-1							
	1 pole		Ue = 24 V DC			20	20	25	25
			Ue = 110 V DC	Ie	A	6			
			Ue = 220 V DC			0,6			
	2 poles connected in series		Ue = 24 V DC			20		25	
			Ue = 110 V DC	Ie	A	10			
			Ue = 220 V DC			6			
	3 poles connected in series		Ue = 24 V DC			-	-	25	25
			Ue = 110 V DC	Ie	A	-	-	20	20
			Ue = 220 V DC			-	-	15	15
	4 poles connected in series		Ue = 24 V DC			-	-	25	25
			Ue = 110 V DC	Ie	A	-	-	20	20
			Ue = 220 V DC			-	-	15	15
	Electrical endurance	DC-1			op. c.	100.000			
	Terminal capacity		rigid	S	mm²	1 … 10			
			flexible			1 … 6			
	Screw					M3.5			
	Screw Head					PZ1			
	Tightening torque				Nm	1,2			
Auxiliary circuit	Rated operational voltage			Ue	V	230	230	400	400
	Rated insulation voltage			Ui	V	230	230	440	440
	Rated impulse withstand voltage			Uimp	kV	4			
	Thermal current			Ith	A	20	20	25	25
	AC-15	single-phase							
	Rated operational current		230 V	Ie	A	6			
		single-phase							
		AC-15	400 V			-	-	4	4
	Electrical endurance				op. c.	300.000		500.000	
Control circuit	Range of control voltage			Uc	%	85 … 110			
	Control voltages			Uc	V	12 … 230			
	Surge immunity test (1.2/50 µs), acc. to IEC/EN 61000-4-5				kV	2			
	Coil consumption	switch-on (handle in A)			VA/W	12/10	2.1/2.1	33/25	2.6/2.6
		switch-on (handle in B)				6/3.8	2.1/2.1	10/5	2.6/2.6
		operation				2.8/1.2	2.1/2.1	5.5/1.6	2.6/2.6
	Make/break delays		make		ms	15 – 25	15 – 45	10 – 30	15 – 45
			break			10 – 30	20 – 50	10 – 30	20 – 70
	Terminal capacity		rigid	S	mm²	1 … 2.5			
			flexible			1 … 2.5			
	Screw					M3			
	Screw head					PZ1			
	Tightening torque				Nm	0,6			



RA/RD 25

Technical data

Type					RN
Standards					IEC/EN 60947-5-1
Module width					1/2
Rated insulation voltage U_i			U_i	V	500
Rated impulse withstand voltage U_{imp}			U_{imp}	kV	4
Thermal current			I_{th}	A	6
Rated operational voltage			U_e	V	230
					400
Rated operational current					
	AC-15	$U_e = 230$ V	I_e	A	6
		$U_e = 400$ V			4
Electrical endurance				op. c.	50.000
Mechanical endurance				op. c.	3×10^6
Min. distance of open contacts				mm	4
Contact reliability					12 V; ≥ 5 mA
Power loss per pole				W	0,3
Weight				kg	0,035
Max. back-up fuse for short-circuit protection gL					
Coordination type 2			I_v	A	6
Terminal capacity		rigid	S	mm^2	1...2.5
		flexible			1...2.5
Screw					M3
Screw head					PZ1
Tightening torque				Nm	0,6

Technical data

Type	Power (W)	Current (A)	C (µF)	Max. number of lamps per pole at 230 V 50 Hz			
				RD20	RD25	RD40	RD63
Incandescent lamps (tungsten filament)	60	0,26	–	33	33	65	85
	100	0,44	–	20	20	40	50
	200	0,87	–	10	10	20	25
	500	2,17	–	3	3	8	10
	1000	4,35	–	1	1	4	5
Fluorescent lamps. uncorrected or series correction	18	0,37	2,7	22	24	90	140
	24	0,35	2,5	22	24	90	140
	36	0,43	3,4	17	20	65	95
	58	0,67	5,3	14	17	45	70
Fluorescent lamps. lead-lag circuit	2 x 18	0,11	–	2 x 30	2 x 40	2 x 100	2 x 150
	2 x 24	0,14	–	2 x 24	2 x 31	2 x 78	2 x 118
	2 x 36	0,22	–	2 x 17	2 x 24	2 x 65	2 x 95
	2 x 58	0,35	–	2 x 10	2 x 14	2 x 40	2 x 60
Fluorescent lamps. parallel correction	18	0,12	4,5	7	8	48	73
	24	0,15	4,5	7	8	48	73
	36	000	4,5	7	8	48	73
	58	0,32	7	4	5	31	47
Fluorescent lamps with electronic ballast units (EVG)	18	0,09	–	25	35	100	140
	36	0,16	–	15	20	52	75
	58	0,25	–	14	19	50	72
	2 x 18	0,17	–	2 x 12	2 x 17	2 x 50	2 x 70
	2 x 36	0,32	–	2 x 7	2 x 10	2 x 26	2 x 38
	2 x 58	0,49	–	2 x 7	2 x 9	2 x 25	2 x 36
High-pressure mercury-vapour lamps. uncorrected	50	0,61	–	14	18	38	55
	80	001	–	10	13	29	42
	125	1,15	–	7	9	20	29
	250	2,15	–	4	5	10	15
	400	3,25	–	2	3	7	10
	700	005	–	1	2	4	6
	1000	008	–	1	1	3	4
High-pressure mercury-vapour lamps. parallel correction	50	0,28	7	4	5	31	47
	80	0,41	8	4	5	27	41
	125	0,65	10	3	4	22	33
	250	1,22	18	1	2	12	18
	400	1,95	25	1	1	9	13
	700	3,45	45	–	–	5	7
	1000	005	60	–	–	4	5
Halogen metal-vapour lamps. uncorrected	35	0,53	–	18	22	43	60
	70	001	–	10	12	23	32
	150	002	–	5	7	12	18
	250	003	–	3	4	7	10
	400	004	–	3	3	6	9
	1000	010	–	1	1	2	3
	2000	16,5	–	–	–	1	1
Halogen metal-vapour lamps, parallel correction	35	0,25	6	5	6	36	50
	70	0,45	12	2	3	18	25
	150	0,75	20	1	1	11	15
	250	002	33	–	1	6	9
	400	003	35	–	1	6	8
	1000	006	95	–	–	2	3
	2000	012	148	–	–	1	2

Type	Power (W)	Current (A)	C (µF)	Max. number of lamps per pole at 230 V 50 Hz			
				RD20	RD25	RD40	RD63
Halogen metal-vapour lamps with electronic ballast unit PCI 50-125 x In lamp for 0.6 ms	20	000	integrated	9	9	18	20
	35	000	integrated	6	6	11	13
	70	0,36	integrated	5	5	10	12
	150	001	integrated	4	4	8	10
Transformers for halogen metal-vapour lamps	20	–	–	40	52	110	174
	50	–	–	20	24	50	80
	75	–	–	13	16	35	54
	100	–	–	10	12	27	43
	150	–	–	7	9	19	29
	200	–	–	5	6	14	23
	300	–	–	3	4	9	14
High-pressure sodium-vapour lamps. uncorrected	150	002	–	5	6	17	22
	250	003	–	3	4	10	13
	400	005	–	2	2	6	8
	1000	10,3	–	–	1	3	3
High-pressure sodium-vapour lamps. parallel correction	150	0,83	20	1	1	11	16
	250	002	33	–	1	6	10
	400	002	48	–	–	4	6
	1000	006	106	–	–	2	3
Halogen metal-vapour lamps with electronic ballast unit PCI 50-125 x In lamp for 0.6 ms	20	000	integrated	9	9	18	20
	35	000	integrated	6	6	11	13
	70	0,36	integrated	5	5	10	12
	150	001	integrated	4	4	8	10
Low-pressure sodium-vapour lamps. uncorrected	18	0,35	–	22	27	71	90
	35	002	–	7	9	23	30
	55	002	–	7	9	23	30
	90	002	–	4	5	14	19
	135	004	–	3	4	10	13
	180	003	–	3	4	10	13
Low-pressure sodium-vapour lamps. parallel correction	18	0,35	5	6	7	44	66
	35	0,31	20	1	1	11	16
	55	0,42	20	1	1	11	16
	90	0,63	26	1	1	8	12
	135	0,94	45	–	–	5	8
	180	1,16	40	–	–	4	7

Technical data

Type	Power (W)	Current (A)	C (µF)	Max. number of lamps per pole at 230 V 50 Hz			
				RD20	RD25	RD40	RD63
Fluorescent lamps LUMILUX T5 with electronic ballast unit (EVG)	22	0,11	FC	22	30	80	110
	40	0,21		12	15	40	60
	55	0,28		8	12	30	45
	14	0,08	HE	30	40	105	150
	21	0,11		22	30	80	115
	28	0,14		18	22	60	90
	35	0,18		14	18	48	70
	24	0,12	HO	20	26	70	100
	39	0,20		12	16	42	62
	49	0,24		10	14	35	52
	54	0,27		9	13	32	47
	80	0,39		6	8	22	32
	2 x 22	0,23	2 x FC	2 x 11	2 x 15	2 x 40	2 x 55
	2 x 40	0,42		2 x 6	2 x 7	2 x 20	2 x 30
	2 x 55	0,55		2 x 4	2 x 6	2 x 15	2 x 22
	2 x 14	0,15	2 x HE	2 x 15	2 x 20	2 x 52	2 x 75
	2 x 21	0,22		2 x 11	2 x 15	2 x 40	2 x 57
	2 x 28	0,28		2 x 9	2 x 11	2 x 20	2 x 45
	2 x 35	0,36		2 x 7	2 x 9	2 x 24	2 x 35
	2 x 24	0,24	2 x HO	2 x 10	2 x 13	2 x 35	2 x 50
	2 x 39	0,39		2 x 6	2 x 8	2 x 21	2 x 31
	2 x 49	0,48		2 x 5	2 x 7	2 x 17	2 x 26
	2 x 54	0,54		2 x 4	2 x 6	2 x 16	2 x 23
	2 x 80	0,74		2 x 3	2 x 4	2 x 11	2 x 16

Type	Power (W)	Current (A)	C (µF)	Max. number of lamps per pole at 230 V 50 Hz			
				R20-R	RD20-R	R25-R	RD25-R
Incandescent lamp (tungsten filament)	60	0,26	–	33	33	33	33
	100	0,44	–	20	20	20	20
	200	0,87	–	10	10	10	10
	500	2,17	–	3	3	3	3
	1000	4,35	–	1	1	1	1
Fluorescent lamps uncorrected or series correction	18	0,37	2,7	22	22	24	24
	24	0,35	2,5	22	22	24	24
	36	0,43	3,4	17	17	20	20
	58	0,67	5,3	14	14	17	17
Fluorescent lamps lead-lag circuit	2 x 18	0,11	–	2 x 30	2 x 30	2 x 40	2 x 40
	2 x 24	0,14	–	2 x 24	2 x 24	2 x 31	2 x 31
	2 x 36	0,22	–	2 x 17	2 x 17	2 x 24	2 x 24
	2 x 58	0,35	–	2 x 10	2 x 10	2 x 14	2 x 14
Fluorescent lamps parallel correction	18	0,12	4,5	7	7	8	8
	24	0,15	4,5	7	7	8	8
	36	000	4,5	7	7	8	8
	58	0,32	7	4	4	5	5

Type	Power (W)	Current (A)	C (µF)	Max. number of lamps per pole at 230 V 50 Hz			
				R20-R	RD20-R	R25-R	RD25-R
Fluorescent lamps with electronic ballast units (EVG)	18	0,09	–	25	25	35	35
	36	0,16	–	15	15	20	20
	58	0,25	–	14	14	19	19
	2 x 18	0,17	–	2 x 12	2 x 12	2 x 17	2 x 17
	2 x 36	0,32	–	2 x 7	2 x 7	2 x 10	2 x 10
	2 x 58	0,49	–	2 x 7	2 x 7	2 x 9	2 x 9
High-pressure mercury-vapour lamps uncorrected	50	0,61	–	14	14	18	18
	80	001	–	10	10	13	13
	125	1,15	–	7	7	9	9
	250	2,15	–	4	4	5	5
	400	3,25	–	2	2	3	3
	700	005	–	1	1	2	2
	1000	008	–	1	1	1	1
High-pressure mercury-vapour lamps. parallel correction	50	0,28	7	4	4	5	5
	80	0,41	8	4	4	5	5
	125	0,65	10	3	3	4	4
	250	1,22	18	1	1	2	2
	400	1,95	25	1	1	1	1
	700	3,45	45	–	–	–	–
	1000	005	60	–	–	–	–
Halogen metal-vapour lamps uncorrected	35	0,53	–	18	18	22	22
	70	001	–	10	10	12	12
	150	002	–	5	5	7	7
	250	003	–	3	3	4	4
	1000	010	–	1	1	1	1
	2000	16,5	–	–	–	–	–
Halogen metal-vapour lamps, parallel correction	35	0,25	6	5	5	6	6
	70	0,45	12	2	2	3	3
	150	0,75	20	1	1	1	1
	250	002	33	–	–	1	1
	400	003	35	–	–	1	1
	1000	006	95	–	–	–	–
	2000	11,5	148	–	–	–	–
Halogen metal-vapour lamps with electronic ballast unit PCI 50-125 x In lamp for 0.6 ms	20	000	integrated	9	9	9	9
	35	000	integrated	6	6	6	6
	70	0,36	integrated	5	5	5	5
	150	001	integrated	4	4	4	4
Transformers for halogen metal-vapour lamps	20	–	–	40	40	52	52
	50	–	–	20	20	24	24
	75	–	–	13	13	16	16
	100	–	–	10	10	12	12
	150	–	–	7	7	9	9
	200	–	–	5	5	6	6
	300	–	–	3	3	4	4
High-pressure sodium-vapour lamps, uncorrected	150	002	–	5	5	6	6
	250	003	–	3	3	4	4
	400	005	–	2	2	2	2
	1000	10,3	–	–	–	1	1

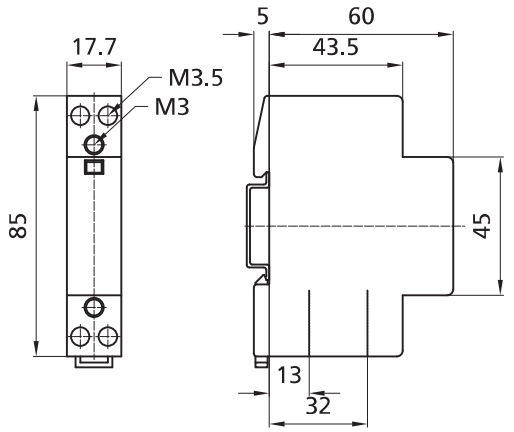
Technical data

Type	Power (W)	Current (A)	C (µF)	Max. number of lamps per pole at 230 V 50 Hz			
				R20-R	RD20-R	R25-R	RD25-R
High-pressure sodium-vapour lamps, parallel correction	150	0,83	20	1	1	1	1
	250	002	33	–	–	1	1
	400	002	48	–	–	–	–
	1000	006	106	–	–	–	–
Halogen metal-vapour lamps with electronic ballast unit PCI 50-125 x In lamp for 0.6 ms	20	000	integrated	9	9	9	9
	35	000	integrated	6	6	6	6
	70	0,36	integrated	5	5	5	5
	150	001	integrated	4	4	4	4
Low-pressure sodium-vapour lamps, uncorrected	18	0,35	–	22	22	27	27
	35	002	–	7	7	9	9
	55	002	–	7	7	9	9
	90	002	–	4	4	5	5
	135	004	–	3	3	4	4
	180	003	–	3	3	4	4
Low-pressure sodium-vapour lamps, parallel correction	18	0,35	5	6	6	7	7
	35	0,31	20	1	1	1	1
	55	0,42	20	1	1	1	1
	90	0,63	26	1	1	1	1
	135	0,94	45	–	–	–	–
	180	1,16	40	–	–	–	–
Fluorescent lamps LUMILUX T5 with electronic ballast unit (EVG)	22	0,11	FC	22	22	30	30
	40	0,21		12	12	15	15
	55	0,28		8	8	12	12
	14	0,08	HE	30	30	40	40
	21	0,11		22	22	30	30
	28	0,14		18	18	22	22
	35	0,18		14	14	18	18
	24	0,12	HO	20	20	26	26
	39	000		12	12	16	16
	49	0,24		10	10	14	14
	54	0,27		9	9	13	13
	80	0,39		6	6	8	8
	2 x 22	0,23	2 x FC	2 x 11	2 x 11	2 x 15	2 x 15
	2 x 40	0,42		2 x 6	2 x 6	2 x 7	2 x 7
	2 x 55	0,55		2 x 4	2 x 4	2 x 6	2 x 6
	2 x 14	0,15	2 x HE	2 x 15	2 x 15	2 x 20	2 x 20
	2 x 21	0,22		2 x 11	2 x 11	2 x 15	2 x 15
	2 x 28	0,28		2 x 9	2 x 9	2 x 11	2 x 11
	2 x 35	0,36		2 x 7	2 x 7	2 x 9	2 x 9
	2 x 24	0,24	2 x HO	2 x 10	2 x 10	2 x 13	2 x 13
	2 x 39	0,39		2 x 6	2 x 6	2 x 8	2 x 8
	2 x 49	0,48		2 x 5	2 x 5	2 x 7	2 x 7
	2 x 54	0,54		2 x 4	2 x 4	2 x 6	2 x 6
	2 x 80	0,74		2 x 3	2 x 3	2 x 4	2 x 4

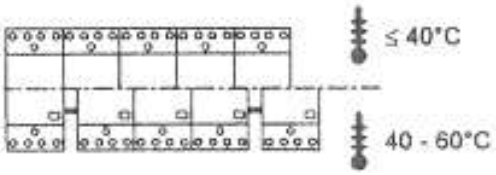
ETICON

Dimensions

R20
165,150

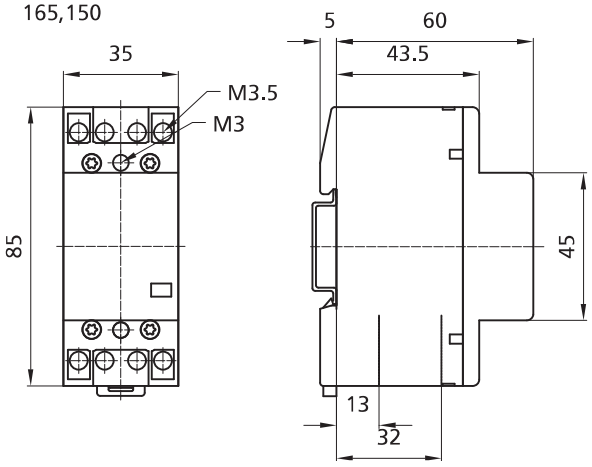


Distance piece

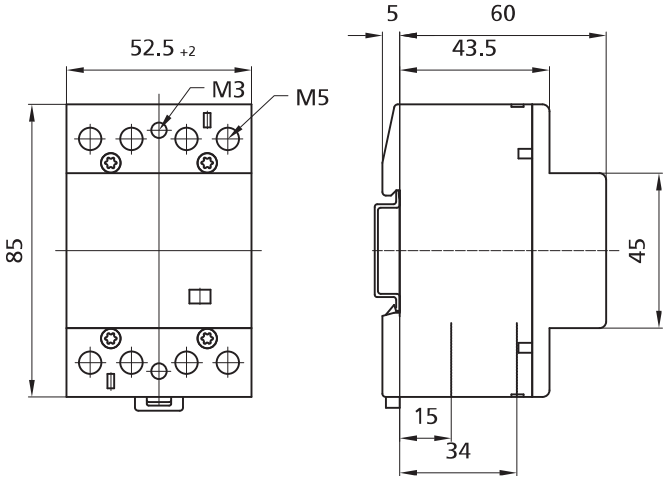


Distance piece is used where ambient temperature is higher than 40°C. Piece width is 1/2 module (8,8 mm)

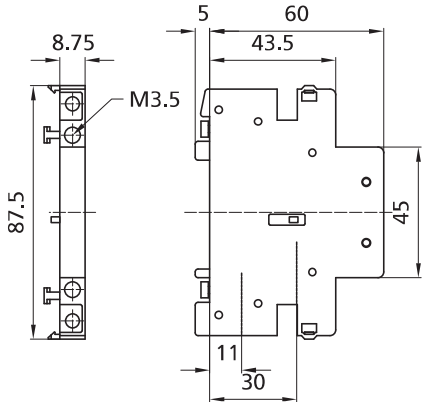
R25
165,150

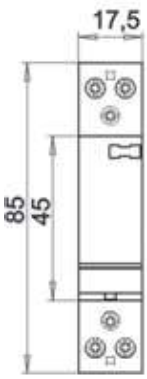


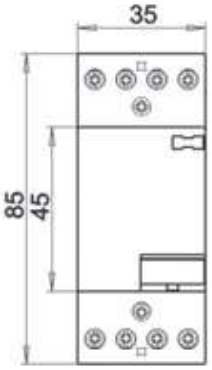
R40,R63
Limits 190,120

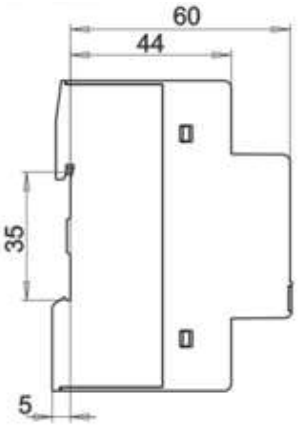


RH11
165,150

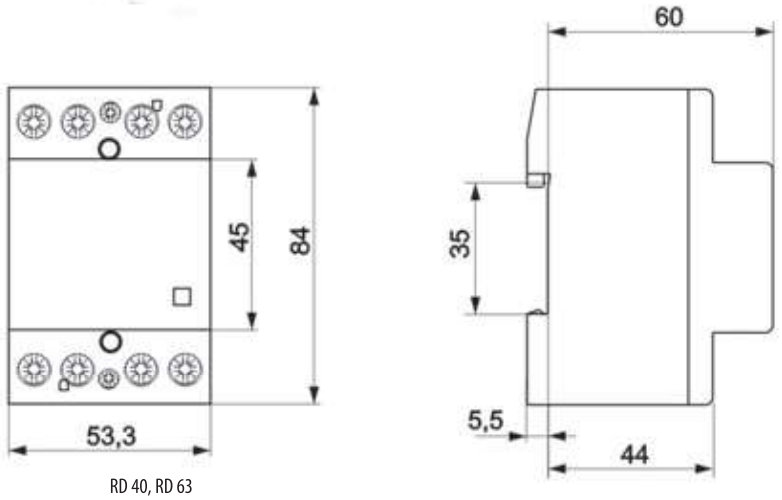




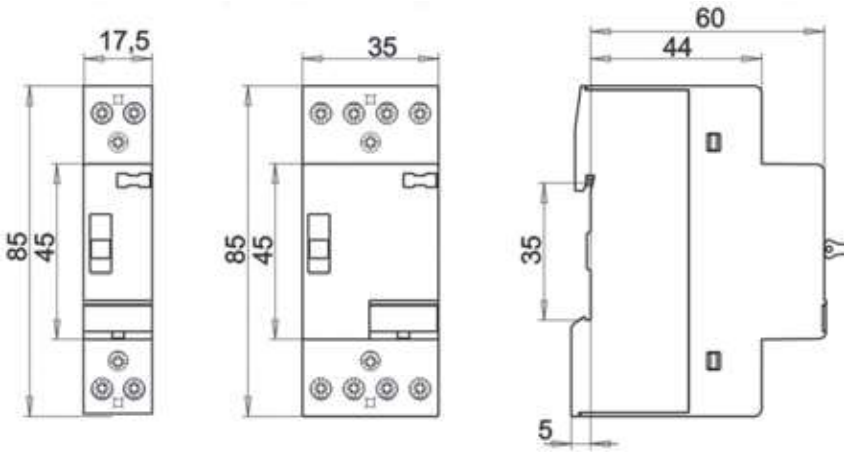




R D 20, RD 25,

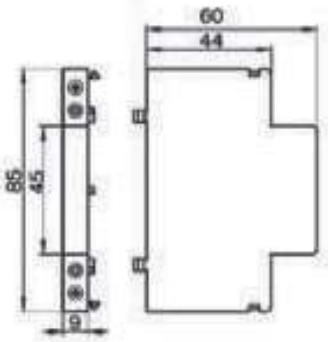


RD 40, RD 63

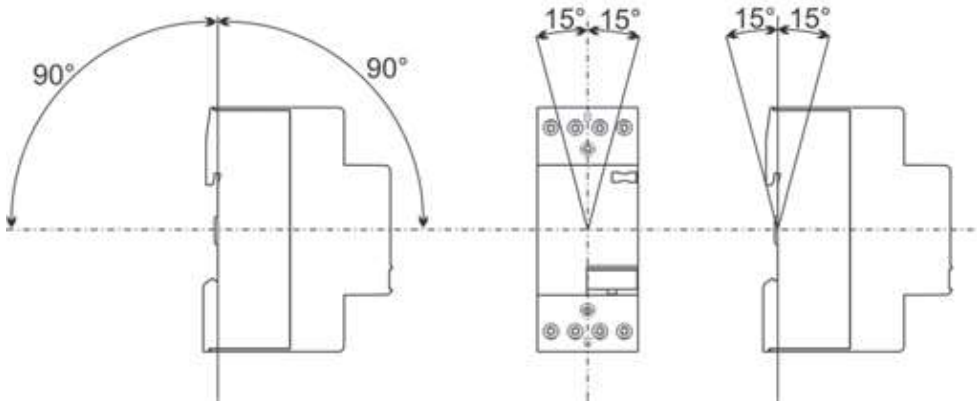
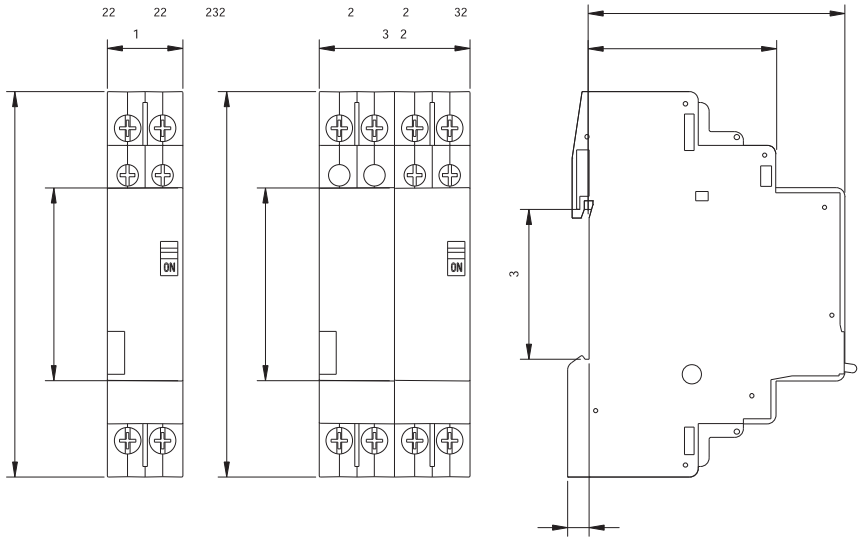
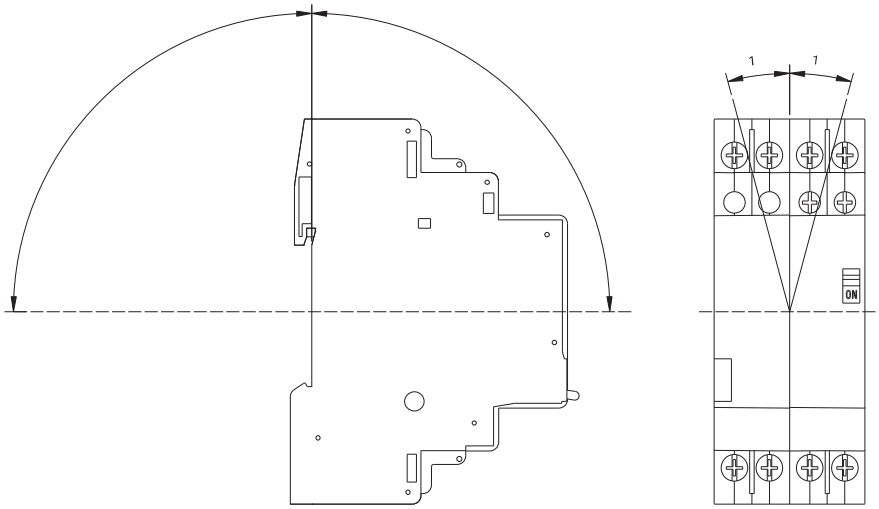


RD 20 - R, RD 25 - R

RN auxiliary switch



Mounting position



Bistable Switch RBS