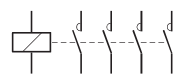


Description	Type	Coil AC 50Hz	In power circuit AC7-a / AC1	Width in ■ 17.5mm	Pack qty.	Cat. ref.
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Contactors



ESC425

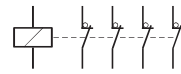


4NO

	230V	25A-440V	2	6	ESC425
		40A-440V	3	4	ESC440
		63A-440V	3	4	ESC463
	24V	25A-440V	2	6	ESD425
		40A-440V	3	1	ESD440
		63A-440V	3	1	ESD463
	12V	25A-440V	2	1	ESL425
		40A-440V	3	1	ESL440
		63A-440V	3	1	ESL463
110/127V	40A-440V	3	1	ESM440	

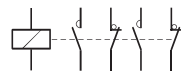


ESC463



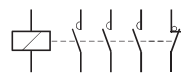
4NC

	230V	25A-440V	2	1	ESC426
		40A-440V	3	1	ESC441
		63A-440V	3	1	ESC464
	24V	25A-440V	2	1	ESD426
		63A-440V	3	1	ESD464
		12V	25A-440V	2	1



2NO+2NC

	230V	25A-440V	2	1	ESC427	
		40A-440V	3	1	ESC442	
		63A-440V	3	1	ESC465	
	24V	25A-440V	2	1	ESD427	
		12V	25A-440V	2	1	ESL427



3NO+1NC

	230V	25A-440V	2	6	ESC428	
		40A-440V	3	4	ESC443	
		63A-440V	3	1	ESC466	
	24V	25A-440V	2	1	ESD428	
		12V	25A-440V	2	1	ESL428

Humfree contactors


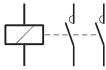

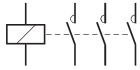

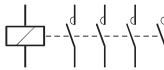

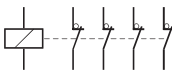

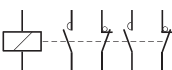

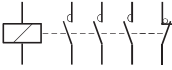
Contactors are essential power devices to control heating, lighting or ventilation systems. They are recommended in association with other control and energy management devices (thermostats, delay timers, programmers...)

The humfree versions are recommended for housing applications where silent operating is requested.

Complies with IEC 61095.

The contactors can be associated with the auxiliaries contact ESC080 for remote signaling, except the ESx225S.

It is recommended to use a heat dissipation insert LZ060 between each product.

Description	Type	Coil	In power circuit	Width in 17.5mm	Pack qty.	Cat. ref.			
Humfree contactors									
		2NO	230V 50/60Hz	25A-250V	1	12	ESC225S		
			220V DC	40A-440V	3	4	ESC240S		
				63A-440V	3	4	ESC263S		
			24V 50Hz	25A-250V	1	1	ESD225S		
			24V DC	40A-440V	3	1	ESD240S		
				63A-440V	3	1	ESD263S		
			12V 50Hz	25A-250V	1	1	ESL225S		
			12V DC	40A-440V	3	1	ESL240S		
				63A-440V	3	1	ESL263S		
				3NO	230V 50/60Hz	25A-440V	2	6	ESC325S
					220V DC	40A-440V	3	1	ESC340S
						63A-440V	3	1	ESC363S
	24V 50Hz			25A-440V	2	1	ESD325S		
	24V DC								
				4NO	230V 50/60Hz	25A-440V	2	6	ESC425S
		220V DC	40A-440V		3	1	ESC440S		
			63A-440V		3	1	ESC463S		
		24V 50Hz	25A-440V		2	1	ESD425S		
		24V DC	40A-440V		3	1	ESD440S		
			63A-440V		3	1	ESD463S		
			12V 50Hz	25A-440V	2	1	ESL425S		
			12V DC	40A-440V	3	1	ESL440S		
				63A-440V	3	1	ESL463S		
				4NC	230V 50/60Hz	25A-440V	2	1	ESC426S
					220V DC				
					24V 50Hz	25A-440V	2	1	ESD426S
24V DC									
12V 50Hz	25A-440V			2	1	ESL426S			
12V DC									
		2NO+2NC	230V 50/60Hz	25A-440V	2	1	ESC427S		
			220V DC						
			24V 50Hz	25A-440V	2	1	ESD427S		
		24V DC							
		12V 50Hz	25A-440V	2	1	ESL427S			
		12V DC							
		3NO+1NC	230V 50/60Hz	25A-440V	2	1	ESC428S		
			220V DC						
			24V 50Hz	25A-440V	2	1	ESD428S		
		24V DC							
		12V 50Hz	25A-440V	2	1	ESL428S			
		12V DC							

ESC225S

ESC425S

ESC463S

Override contactors

For the remote switching and control of power circuits.

They are equipped with a 3 position manual control button:

- permanent ON,
- automatic mode,
- permanent OFF.

Can be associated with the auxiliary contact ESC080 for remote signaling.

Complies with IEC 61095.

It is recommended to use a heat dissipation insert LZ060 between each 3 products.



ERC225



ERC425

Description	Type	Coil AC 50Hz	In power circuit AC7-a / AC1	Width in ■ 17.5mm	Pack qty.	Cat. ref.		
Override contactors								
	1NO	230V	25A-250V	1	12	ERC125		
	2NO	230V	25A-250V	1	12	ERC225		
			40A-440V	3	1	ERC240		
			63A-440V	3	1	ERC263		
	24V	2NO	25A-250V	25A-250V	1	12	ERD225	
				40A-440V	3	1	ERD240	
				63A-440V	3	1	ERD263	
		12V	2NO	25A-250V	25A-250V	3	1	ERL225
					40A-440V	3	1	ERL240
					63A-440V	3	1	ERL263
8/12V	2NO	25A-250V	25A-250V	1	1	ERL225		
	2NC	230V	25A-250V	1	12	ERC226		
	3NO	230V	25A-440V	2	6	ERC325		
	4NO	230V	25A-440V	2	6	ERC425		
			24V	25A-440V	2	6	ERD425	
			12V	25A-440V	2	1	ERL425	
	4NC	230V	25A-440V	2	1	ERC426		
	2NO+2NC	230V	25A-440V	2	1	ERC427		
	3NO+1NC	230V	25A-440V	2	1	ERC428		

Humfree override contactors

For the remote switching and control of power circuits.

They are equipped with a 3 position manual control button:
 - permanent ON,
 - automatic mode,
 - permanent OFF.

The humfree versions are recommended for housing applications where silent

operating is requested.

Complies with IEC 61095.

Can be associated with the auxiliary contact ESC080, except 1 module humfree contactors (ERC225S).

It is recommended to use a heat dissipation insert LZ060 between each product.



ERC225S



ERC425S

Description	Type	Coil	In power circuit	Width in 17.5mm	Pack qty.	Cat. ref.	
Humfree override contactors							
	2NO	230V 50/60Hz	25A-250V	1	1	ERC225S	
		220V DC	40A-440V	3	1	ERC240S	
		24V 50Hz	40A-440V	3	1	ERD240S	
		24V DC	63A-440V	3	1	ERD263S	
		12V 50Hz	40A-440V	3	1	ERL240S	
12V DC	63A-440V	3	1	ERL263S			
	3NO	230V 50/60Hz	25A-440V	2	6	ERC325S	
		220V DC					
	4NO	230V 50/60Hz	25A-440V	2	1	ERC425S	
		220V DC					
		24V 50Hz	25A-440V	2	1	ERD425S	
		24V DC					
		12V 50Hz	25A-440V	2	1	ERL425S	
		12V DC					

Night & day contactors

Night & day contactors allows the functioning of electrical devices during off-peak hours, especially storage heaters and water-heaters.

The manual override allows:

- temporary override with automatic return at next coil energization,
- permanent switch-off in case of long leave.

Standard **1** and **2** versions are recommended for applications where a reduced consumption and heating dissipation are needed.

The humfree versions ETCx25S are recommended for housing applications where silent operating is requested. Humfree operating is guaranteed in time, switching noise is reduced.

Complies with NF EN 61095

Auxiliary contact

- associated with a contactor, it allows remote signaling,
- mechanical status indicator.



ETC225



ETC425S

Description	Type	Coil AC	In power circuit AC7-a / AC1	Width in 17.5mm	Pack qty.	Cat. ref.
Night & day contactors						
	2NO	230V 50Hz	25A-250V	1	1	ETC225
	2NC	230V 50Hz	25A-250V	1	1	ETC226
	1NO+1NC	230V 50Hz	25A-400V	1	1	ETC227
	3NO	230V 50Hz	25A-440V	2	1	ETC325
		230V 50Hz	40A-440V	3	1	ETC340
		230V 50Hz	63A-440V	3	1	ETC363
	4NO	230V 50Hz	25A-440V	2	1	ETC425
		230V 50Hz	40A-440V	3	1	ETC440
		230V 50Hz	63A-440V	3	1	ETC463
Humfree night & day contactors						
	2NO	230V 50/60Hz 220V DC	25A-250V	1	1	ETC225S
	3NO	230V 50/60Hz 220V DC	25A-250V	2	1	ETC325S
			25A-250V	2	1	ETC425S

Auxiliary contact

Associated with a relay or a contactor, it allows to show the product status or remote signaling.

Not compatible with 1 module humfree contactors and EN145 / EN146.

Heat dissipation insert

It is recommended to use a heat dissipation insert LZ060 between each 3 products.

Sealing covers

Not compatible with EN145 / EN146.

Description	Type	In power circuit AC7-a / AC1	Width in ■ 17.5mm	Pack qty.	Cat. ref.
-------------	------	---------------------------------	----------------------	-----------	-----------

Auxiliary contact



1NO+1NC

6A-250V

1/2

1

ESC080



ESC080

Sealing cover

for **1■** contactors

1

10

ESC001

for **2■** contactors

2

10

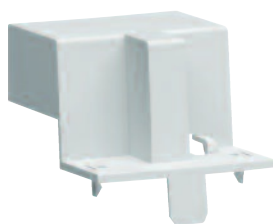
ESC002

for **3■** contactors

3

10

ESC003



ESC002

Heat dissipation insert

1/2

12

LZ060



LZ060

Description		Modular contactor and relay						Auxiliary contact	
Standard conformity		EN 61095							
Approvals		NF - VDE - IMQ - KEMA - RMC / CCC							
		Relay	Contactor	Relay	Contactor	Contactor	Contactor	Accessory	
Number of modules		1		2		3		0.5	
Thermal current I _{th} (40°C)		16A	25A	16A	25A	40A	63A	6A	
Rated frequency		50Hz	50Hz	50Hz	50Hz	50Hz	50Hz	50Hz	
Rated insulation voltage (U _i)		250V	250V	440V	440V	440V	440V	250V	
Rated impulse withstand voltage (U _{imp})		4kV	4kV	4kV	4kV	4kV	4kV	4kV	
Protection degree		2	2	2	2	2	2	2	
Rated operating currents and power ratings in AC									
AC-1 / AC-7a	rated operational currents I _e	16A	25A	16A	25A	40A	63A	-	
	rated operational power	230V	3kW	4.6kW	3kW	4.6kW	7.3kW	11.6kW	-
		400V	-	-	8.9kW	13.8kW	22kW	35kW	-
AC-3 / AC-7b	rated operational currents I _e	5.5A	8.5A	5.5A	8.5A	25A	32A	-	
	rated operational power	230V	570W	880W	570W	880W	2.6kW	3.3kW	-
		400V	-	-	1.7kW	2.6kW	7.8kW	10kW	-
AC-12	rated operational currents at 230V	-	-	-	-	-	-	6A	
AC-15	rated operational currents at 230V	-	-	-	-	-	-	2A	
Mechanical and electrical endurances									
Mechanical endurance	nr of operations	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	
Electrical endurance at I _e AC7a (AC12 for aux contacts)	nr of operations	60,000	60,000	60,000	60,000	60,000	60,000	60,000	
MCB protected short-circuit withstand									
Prospected short-circuit current	rms	1kA	3kA	1kA	3kA	3kA	3kA	1kA	
Associated protection		MCB C16-6kA	MCB C25-6kA	MCB C16-6kA	MCB C25-6kA	MCB C40-10kA	MCB C63-10kA	6A 10x38 gG fuse or mcb	
Power dissipation									
Power dissipation per current path		1W	1.5W	1W	1.5W	3.2W	5W	0.4W	
Magnetic system for eco and standard contactor									
Pick-up		7.4VA	7.4VA	9.2VA	9.2VA	60VA	60VA	-	
Coil consumption		1.8VA	1.8VA	1.85VA	1.85VA	7VA	7VA	-	
Closing delay		25ms	25ms	25ms	25ms	25ms	25ms	-	
Opening delay		15ms	15ms	15ms	15ms	20ms	20ms	-	
Connection									
Main contact cable section	rigid	1...10mm ²	1...10mm ²	1...10mm ²	1...10mm ²	4...25mm ²	4...25mm ²	1...6mm ²	
	flexible	1...6mm ²	1...6mm ²	1...6mm ²	1...6mm ²	4...16mm ²	4...16mm ²	1...6mm ²	
Main contact connection screw	type	M3.4	M3.4	M3.4	M3.4	M5	M5	M3.4	
	posidrive	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2	
	max. tight. torque	1.2Nm	1.2Nm	1.2Nm	1.2Nm	2Nm	2Nm	1.2Nm	
Coil connection cable section	rigid	1...10mm ²	1...10mm ²	1...10mm ²	1...10mm ²	1...10mm ²	1...10mm ²	-	
	flexible	1...6mm ²	1...6mm ²	1...6mm ²	1...6mm ²	1...6mm ²	1...6mm ²	-	
Coil connection screw	type	M3.5	M3.5	M3.5	M3.5	M4	M4	-	
	posidrive	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2	-	
	max. tight. torque	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.5Nm	1.5Nm	-	
Working temperature									
		-10°C to +50°C							
Storage temperature									
		-40°C to +80°C							

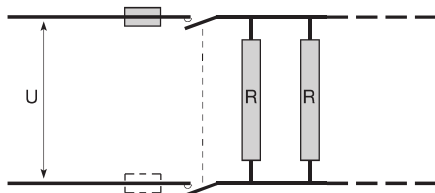
Choice of contactors

The choice of contactor is based on many factors:

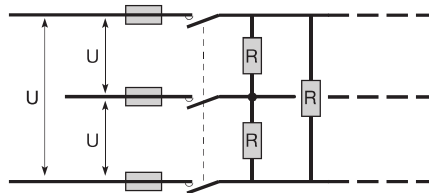
- type of the load supplied,
- nominal current of the load,
- operating voltage,
- number of operations, etc..

The contactors are AC7-a (resistive load) and AC7-b (inductive load) approved.

Single phase



Three phase supply



Number of operations			60,000	100,000	150,000	300,000	600,000
Maximum load* in kW	230V	16A	3.0	2.5	1.9	0.8	0.7
		25A	4.6	4.0	3.0	1.3	1.0
		40A	7.3	6.3	4.7	2.2	1.6
		63A	11.6	10.0	7.5	3.5	2.5
	400V	16A	8.9	8.0	5.8	2.8	2.0
		25A	13.8	12.0	8.6	4.3	3.0
		40A	22.0	18.5	14.3	6.3	5.0
		63A	35.0	30.0	22.6	10.2	7.6

* On three phase configuration the maximum load per phase corresponds to the values states divided by 3.

Example:

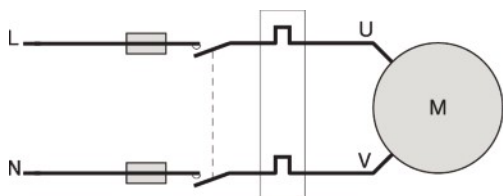
Function of a heating installation 200 days/annum, 75 operations per day (1 opening + 1 closing = 2 operations)

Mechanical life = 10 years

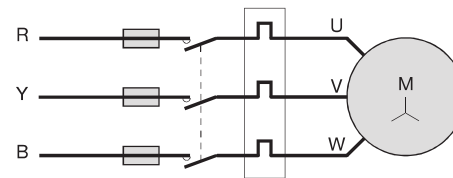
Total number of operations: $200 \times 75 \times 10 = 150,000$

in that case, depending on the type of circuit, select a contactor 40A 230V to control a load of 4.7 kW, or a contactor 16A 400V to control a load up to 5.8 kW.

Motor applications (AC7-b equivalent to AC3) Single phase 230V



Three phase 400V



	Contactor rating	Control diagram	
		2P 230V single phase	3P 400V three phase
Maximum power for the motor	16A	0.57 kW	1.7 kW
	25A	0.88 kW	2.65 kW
	40A	2.6 kW	7.8 kW
	63A	3.3 kW	10 kW

Influence of working temperature:

Derating factor between 40°C and 50°C : 0.9

Example: heating with convector

The maximum load of ESC225 is 4.6kW for 60,000 operations and for a temperature <40°C.

between 40°C and 50°C, the load is 4.6×0.9 i.e. 4.14kW

Adjacent fitting:

It is necessary to put a heat dissipation insert (reference LZ060) between each 3 products, or each humfree contact.

Lighting selection

Due to the large variety of electrical characteristics in lamps, especially for the inrush current, the chart gives the maximum number of lamps based on the lamp technology and the inrush current (high / low). The goal is to give the most precise and the highest number of lamps acceptable for the contactor.

If the inrush current is not known, choose the column "I peak high" in order to favour the contactor lifetime.

The table below indicates the number of lamps (or dual fittings) that can be connected to each pole of the contactor on 230V/50Hz circuits.

Type	Power	1 and 2 modules				3 modules			
		I peak high 16A	I peak low 16A	I peak high 25A	I peak low 25A	I peak high 40A	I peak low 40A	I peak high 63A	I peak low 63A
Incandescent lamps									
tungsten & halogen lamps	40W	32	38	50	60	76	102	120	160
	60W	21	31	33	48	67	79	105	125
	75W	17	24	27	38	67	63	105	100
	100W	13	19	20	30	41	48	65	75
	150W	9	13	13	20	29	32	45	50
	200W	6	10	10	15	22	24	35	38
	300W	4	6	7	10	15	16	23	25
	500W	3	4	4	6	9	10	14	15
	1000W	1	2	2	3	4	5	7	8
	Fluorescent tubes								
energy saving lamp compact fluo lamp with external electronic ballast or compensated	13W	11	21	17	33	55	108	86	170
	14W	7	21	11	33	36	108	57	170
	17W	7	21	11	33	36	108	57	170
	18W	7	21	11	33	36	108	57	170
	24W	7	17	11	27	36	75	57	91
	26W	7	12	11	19	36	58	57	91
	32W	7	12	11	19	36	58	57	91
	36W	7	12	11	19	36	58	57	91
	40W	7	12	11	19	36	58	57	91
	42W	7	12	11	19	36	58	57	91
	55W	7	12	11	19	36	58	57	91
	60W	6	10	10	15	27	42	42	66
	energy saving lamp compact fluo lamp with integrated electronic ballast substitute for incandescent lamps	5W	17	32	27	50	86	159	135
7W		17	32	27	50	86	159	135	250
9W		17	32	27	50	86	159	135	250
11W		17	32	27	50	86	159	135	250
15W		17	32	27	50	86	159	135	250
18W		13	22	20	35	63	111	100	175
20W		13	22	20	35	63	111	100	175
23W		13	22	20	35	63	111	100	175
26W		13	22	20	35	63	111	100	175
single - electronic ballast or compensated		14W	7	32	11	50	36	162	57
	21W	7	21	11	33	36	108	57	170
	22W	7	21	11	33	36	108	57	170
	24W	7	17	11	27	36	81	57	127
	28W	7	17	11	27	34	81	53	127
	35W	7	17	11	27	34	81	53	127
	39W	7	12	11	19	29	58	45	91
	40W	7	12	11	19	29	58	45	91
	49W	6	12	10	19	29	58	45	91
	54W	6	12	10	19	29	58	45	91
	55W	6	10	10	15	27	44	42	70
	60W	6	10	10	15	27	44	42	70
	80W	6	10	10	15	27	44	42	70
	95W	6	7	10	11	25	29	39	46
	120W	6	7	10	11	25	29	39	46
double - electronic ballast	2x14W	7	17	11	27	34	81	53	127
	2x21W	7	12	11	19	29	58	45	91
	2x28W	6	10	10	15	27	44	42	70
	2x40W	6	10	10	15	27	44	42	70
	2x49W	6	7	10	11	25	29	39	46
	2x60W	6	7	10	11	25	29	39	46

Type	Power	1 and 2 modules				3 modules			
		I peak high 16A	I peak low 16A	I peak high 25A	I peak low 25A	I peak high 40A	I peak low 40A	I peak high 63A	I peak low 63A
Discharge lamps									
Low pressure sodium-vapour lamps (uncompensated)	18W	8	12	10	18	18	23	21	36
	35W	4	6	6	10	10	16	13	25
	55W	3	6	6	9	9	14	12	22
	90W	2	4	4	6	6	13	9	20
	135W	1	3	3	4	4	8	6	12
	180W	1	2	2	3	4	6	5	10
low pressure sodium-vapour lamps (electronic ballast)	35W	4	6	6	10	13	33	23	51
	55W	3	5	5	8	13	24	19	38
	66W	3	5	4	8	13	24	19	38
	91W	2	4	3	6	13	20	16	31
high pressure sodium-vapour lamps (uncompensated)	35W	11	17	14	22	30	40	35	60
	50W	9	15	12	17	22	28	25	42
	70W	8	10	9	12	18	20	19	32
	80W	7	9	8	11	15	19	18	29
	110W	6	8	7	10	14	17	16	25
	150W	4	6	5	7	10	13	12	18
	250W	2	3	3	4	6	8	7	11
	400W	0	0	0	1	4	5	5	8
	1000W	0	0	0	1	2	3	3	4
	high pressure sodium-vapour lamps (electronic ballast)	45W	6	10	9	12	13	36	25
50W		6	10	9	12	13	34	24	43
60W		6	10	9	12	13	32	23	41
70W		4	6	6	9	13	23	18	36
100W		3	6	5	9	13	18	16	32
150W		3	6	5	9	13	14	14	30
halogen metal vapour lamp (uncompensated)	35W	12	27	24	40	42	68	55	106
	70W	10	16	15	24	26	42	34	64
	150W	6	8	7	12	14	20	17	32
	250W	3	5	5	8	9	14	12	21
	400W	1	3	2	4	6	8	7	13
	1000W	0	0	0	1	3	4	4	5
halogen metal vapour lamp (electronic ballast)	20W	6	13	10	20	22	56	34	88
	35W	6	13	10	20	22	56	39	80
	70W	5	10	8	15	22	56	39	80
	150W	3	6	5	12	12	32	22	60
	210W	4	6	5	12	10	28	19	50
	315W	4	6	5	12	8	26	17	48