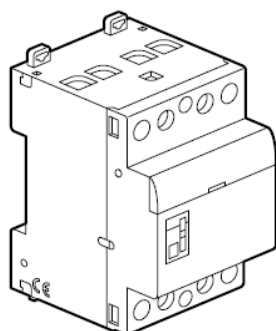


Power contactors 40 A and 63 A with or without handle

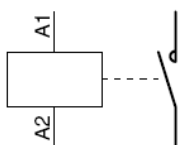
Cat. N°(s) : 412 506, 507, 511, 512, 515, 516, 518,
519, 525 to 528, 530, 531, 537 to 542, 545 to 550,
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1. DESCRIPTION - USE

Symbol :



Technology :

. Electromagnetic contactor

Use :

. remote control of a load by the mean of a switch

2. RANGE

Rated thermal current :

. I_{th} = 40 and 63 A

Types of contacts :

. « NO », normally open contact 

. « NC », normally closed contact 

Poles :

. Double pole in 2 module (2 x 17,8 mm = 35,6 mm)

- « 2NO »

- « 2NC »

. Four pole in 3 modules (3 x 17,8 mm = 53,4 mm)

- « 3NO »

- « 4NO »

- « 4NC »

- « 3NO + 1NC »

Rated voltage (power contacts) :

. U_n = 250 V / 400 V ~

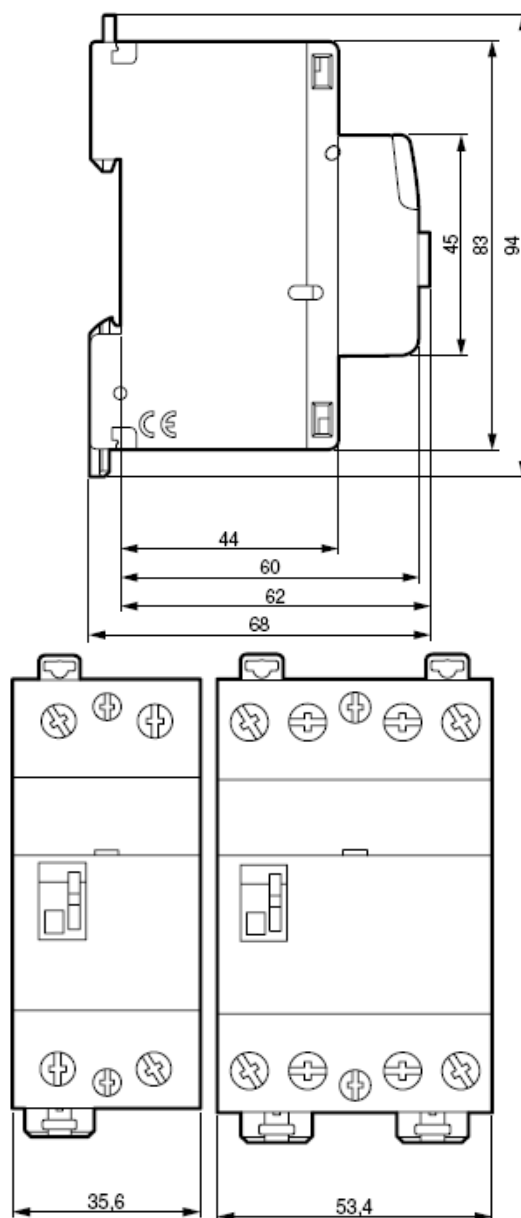
Rated control voltage :

. 24 V and 230 V ~

Rated frequency, power and control :

. 50 / 60 Hz

3. OVERALL DIMENSIONS



Power contactors 40 A and 63 A with or without handle

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519, 525 to 528, 530, 531, 537 to 542, 545 to 550,
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4. PREPARATION - CONNECTION

Installation software :

. XL PRO

Operational positions :

. Vertical, horizontal, upside down, on the side

Fixing :

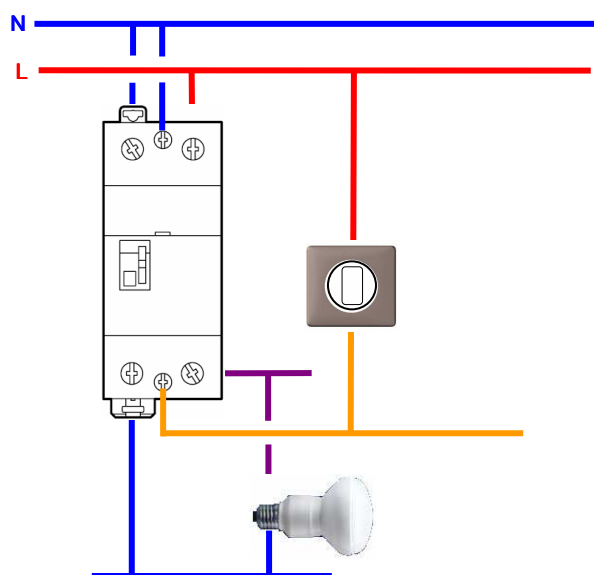
. On symmetrical rail EN 50-055 or DIN 35 by the mean of two plastic clamps.

Recommended tools :

- . For control terminal screws : screwdriver, insulated or not, Pozidriv n°1 or plate (4mm wide).
- . For power terminal screws : screwdriver, insulated or not, Pozidriv n°2 or plate (6.5mm wide).
- . For fixing : Pozidriv n°1 or plate (5.5 mm max) screwdriver

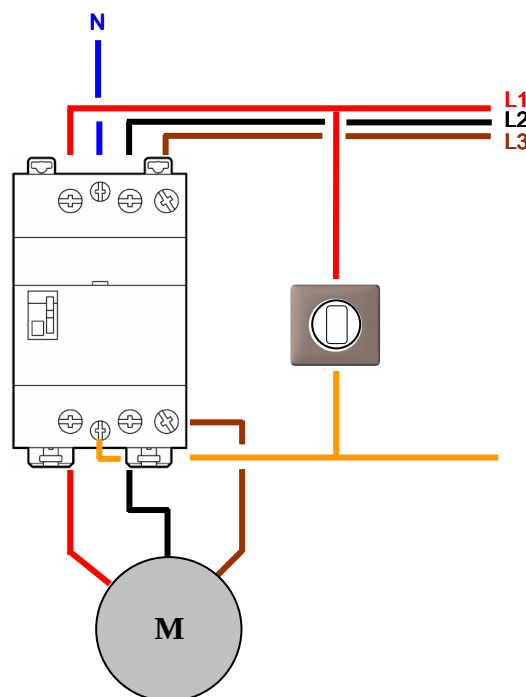
Examples of wiring diagrams :

. Contactor « 2 NO »

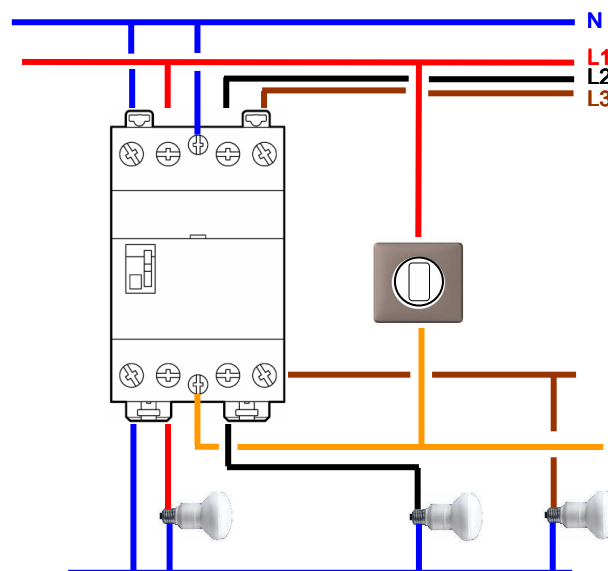


4. PREPARATION - CONNECTION *(continued)*

. Contactor « 3 NO »



. Contactor « 4 NO »



Power contactors 40 A and 63 A with or without handle

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519, 525 to 528, 530, 531, 537 to 542, 545 to 550,
552 to 557, 559, 560, 562, 563

4. PREPARATION - CONNECTION *(continued)*

Connection :

. Control screw terminals :

- Type of terminal : cage terminals
- Terminal depth : 12 mm
- Terminal capacity (h x w) : 4.7 x 4.7 mm
- Copper cables

Rigid : 1 x (0.75 to 6 mm²) or 2 x (0.75 to 2.5 mm²)

Flexible without ferrule : 1 x (0.75 to 6 mm²) or 2 x (0.75 to 2.5 mm²)

Flexible with single ferrule : 1 x (0.75 to 6 mm²)

Flexible with double ferrule : 1 x (0.75 to 4 mm²)

- Screw head type: mixed, Posidriv n° 1 and slotted 4 mm
- Type of screw : M3
- Tightening torque : mini = 0.5 Nm / max = 1.2 Nm /
recommended = 0.8 Nm

. Power screw terminals :

- Type of terminal : cage terminals
- Terminal depth : 14 mm
- Copper cables

Rigid : 1 x (0.75 to 25 mm²) or 2 x (0.75 to 10 mm²)

Flexible without ferrule : 1 x (0.75 to 25 mm²) or 2 x (0.75 to 10
mm²)

Flexible with single ferrule : 1 x (0.75 to 16 mm²)

Flexible with double ferrule : 1 x (0.75 to 16 mm²)

- Screw head type: mixed, Posidriv n° 2 and slotted 6.5 mm
- Type of screw : M5
- Tightening torque : mini = 1.3 Nm / max = 3.5 Nm /
recommended = 2.5 Nm

Length of control lines :

- . 24 V contactor : 100 m with 1.5 mm² copper wire
- . 230 V contactor : 300 m whatever the wire cross-section.

Protection degree :

- . Terminal ingress protection : IP2x (device connected)
- . Front face ingress protection : IP3XD
- . Classe II, front face behind a cabinet faceplate
- . Protection against mechanical shocks : IK04

Shaking resistance :

- . No change of contact state during shaking test in accordance with
EN 60898 standard

actuation :

- . By electric remote control (switch)
- . By ergonomic 3 position (I, auto, O) handle when contactor is
equipped with

Display of contacts state :

- . By orange indicator when manual or electric control is on
- . When contactor is fitted with a handle,
 - Position « I » : permanent control ON
 - Position « O » : permanent control OFF
 - Position « auto » : electric control by switch

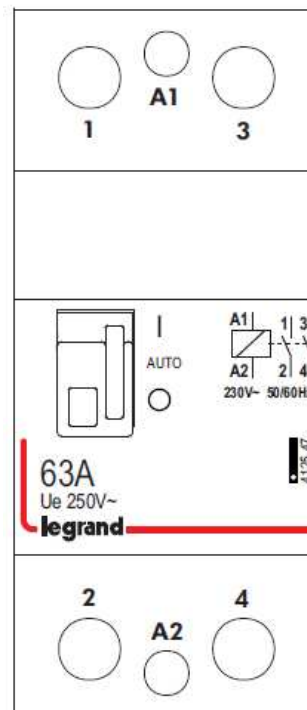
Labelling :

- . Circuit may be labelled by the mean of the label holder on the front
face of the latching relay

5. GENERAL CHARACTERISTICS

Marking :

By permanent ink pad printing :



Isolation :

- . > 3 mm in compliance with EN 61095 standard

Isolation rated voltage (Ui) :

- . Double pole : 250 V~
- . Triple pole / Four pole : 400 V~

Pollution degree :

- . 2 according to EN 61095 standard

Isolation voltage between control and load :

- . 4 000 V.

Rated impulse withstand voltage (Uimp) :

- . 4 kV

Power contactors 40 A and 63 A with or without handle

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5. GENERAL CHARACTERISTICS *(continued)*

Withstand to electromagnetic disturbances (EMC) :

. Schock wave 1,2 / 50 μ s : class 4 (2 kV between lines, 4 kV between line and earth)

Influence of altitude :

. no effect up to 2 000 m

Rated frequency :

. 50 / 60 Hz

Rated current for each category of use (Ie) :

Type of contact	AC1 / AC7a heating		AC3 / AC7b motors	
	Ie	P	Ie	P
2NO / 2NC	40 A	9 kW	22 A	5.5 kW
3NO / 4NO / 3NO+1NC / 4 NC	40 A	26 kW	22 A	11 kW
2NO / 2NC	63 A	14 kW	30 A	8 kW
3NO / 4NO / 3NO+1NC / 4 NC	63 A	40 kW	30 A	15 kW

Operation rated voltage (Ue) :

. Ue = 250 V ~ for double pole
. Ue = 400 V ~ for triple pole and four pole

Protection against short-circuits :

. Conditionnal short-circuit current Iq = 3 000 A according to EN 61095 standard
. Maximum thermal stress : 18 000 A²s
. To protect 40 A and 63 A contactors against short-circuits in accordance with conditionnal current Iq = 3 000 A (EN 61095 standard), we recommend to use a $\leq$ 40 A rated current M.C.B. or gG fuse for a 40 A contactor and a $\leq$ 63 A rated current M.C.B. or gG fuse for a 63A contactor

Control voltage (Uc) :

. Uc = 230 V~ or 24 V~

Operating control voltage :

. from 0.85 to 1.1 Uc

Release control voltage :

. from 0.2 to 0.75 Uc

Control impulse time :

. 100 ms mini

Rated duty :

. Intermittent duty : 600 operating cycles per hour according to EN 61095 standard (class 600)

Force by handle operation :

. 500 g for closing and opening operation

Operation under 400 Hz :

. not possible

5. GENERAL CHARACTERISTICS *(continued)*

Endurance :

In number of operating cycles (ON + OFF)

. Control by handle : 1000 operating cycles

. Electrical control :

- 1 000 000 operating cycles with no load
- 100 000 operating cycles at Ie AC-7a in accordance with EN 61095 (same at Ie AC1)
- 30 000 operating cycles at Ie AC-7b in accordance with EN 61095 (same at Ie AC3)

Use with Direct Current (DC) :

. Control : do not operate with DC

. Power circuit : NO and NC contacts may be used to control loads supplied with DC in accordance with the table of max current below for 63 A contactors

Ue	DC 1 (resistiv load)			DC 3 (motors)		
	number of poles in series			number of poles in series		
	1 p	2 p	3 p	1 p	2 p	3 p
8 V=	63 A	63 A	63 A	54 A	63 A	63 A
12 V=	63 A	63 A	63 A	50 A	63 A	63 A
24 V=	63 A	63 A	63 A	40 A	63 A	63 A
48 V=	53 A	63 A	63 A	20 A	45 A	63 A
110 V=	18 A	40 A	63 A	4 A	16 A	40 A

Control consumption :

Type of contact	Control voltage	Current in mA (at Un)	
		sustain	inrush
2NO	24 V~	250	1750
4NO		270	1500
2NO	230 V~	130	150
2NC		130	150
3NO+1NC		30	200
3NO / 4NO / 4NC		30	200

Type of contact	Control voltage	Power in W (at Un)
		sustain
2NO	24 V~	1.8
4NO		1.9
2NO	230 V~	0.9
2NC		0.9
3NO+1NC		2.1
3NO / 4NO / 4NC		2.1

Power contactors 40 A and 63 A with or without handle

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5. GENERAL CHARACTERISTICS *(continued)*

Average dissipated power per contact at 230V :

- 1.8 W per contact of 40 A contactor
- 3.5 W per contact of 63 A contactor

Annual energy consumption of contactors :

- Loads supplied in 230/400V 50Hz network
- Global energy consumption, control + power contacts, with an « average » use.

Type of contact	Control voltage	in kWh (at Un)
2NO	24 V~	3.1
4NO		4.8
2NO	230 V~	2.4
2NC		2.4
3NO		4.1
3NO+1NC		5
4NC		5
4NO		5

Noise (holding) :

- Standard contactor ≤ 50 dB at 1 cm and ≤ 30 dB at 1 m
- Noiseless contactor ≤ 32 dB at 1 cm and ≤ 20 dB at 1 m

Operating temperatures :

- A standard contactor is set to operate at its rated current (40 A or 63 A) in an ambient temperature of + 30°C
- In order to limitate overheating, we recommend to use a spacing element (cat. n° 044 40)
 - Every 2 contactors if the ambient temperature ≤ 40°C
 - Every contactors if the ambient temperature > 40°C
- Depending on ambient temperature, deratings below must be used :
 - from - 25°C to + 40°C, no derating
 - from + 40°C to + 60°C derating as in table below

Contactor rated current	40°C	50°C	60°C
Ie = 40 A	40 A	36 A	32 A
Ie = 63 A	63 A	57 A	50 A

Storage temperature :

- from - 40°C up to + 70°C

Moulded case material :

- Polyamid

Characteristics of the plastic material :

- Resistance to glow wire test during 30 s according to IEC 695-2-1:
 - Handle : 650°C
 - Other components : 850°C

Weight :

- 0.240 kg per double pole device
- 0.330 kg per triple pole / four pole device

Packaged volume :

- 0.4 dm³ for double pole individually packaged units
- 0.6 dm³ for triple pole and four pole individually packaged units

5. GENERAL CHARACTERISTICS *(continued)*

Contactors choice table :

For a life time of 10 years with 200 days of annual use

. Heating

Maximum power according to the number of operations per day (kW)						
Number of operations per day	≤ 50	75	100	250	500	
230 V~ single phase heating	40 A	9	7.5	6	4	2.5
	63 A	14	12	9.5	6	4.5
400 V~ three phase heating	40 A	26	22	17	8	6
	63 A	41	35	26	13	9

. Motors (AC-7b)

Maximum power (kW)		
230 V~ single phase motor	40 A	2.5
	63 A	4
400 V~ three phase motor	40 A	7.5
	63 A	15

. Lighting

Maximum number of lamps per contact of the contactor in 230 V~ single phase network and 400 V~ three phase and neutral network.
In 230 V~ three phase network with no neutral, values of the table must be divided by $\sqrt{3}$.

- Incandescent lamps

Tungsten filament 230 V~ and low voltage halogen				
Unit power	40 W	60 W	75 W	100 W
40 A	96	77	61	48
63 A	154	123	97	77

Tungsten filament 230 V~ and low voltage halogen (continued)				
Unit power	150 W	200 W	500 W	1000 W
40 A	32	24	10	5
63 A	51	38	15	8

Very Low Voltage halogen lamps with ferromagnetic ballast						
Unit power	20 W	35 W	50 W	75 W	100 W	150 W
40 A	68	39	31	21	16	10
63 A	88	51	41	27	20	14

Very Low Voltage halogen lamps with electronic ballast						
Unit power	20 W	35 W	50 W	75 W	100 W	150 W
40 A	112	70	56	36	28	18
63 A	157	98	78	51	39	25

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5. GENERAL CHARACTERISTICS *(continued)*

- Fluorescent lamps with ferromagnetic ballast

Single parallel compensated					
Unit power	18 W	20 W	36 W	58 W	115 W
40 A	43	39	33	22	12
63 A	56	51	42	29	15

Twin serial compensated					
Unit power	2 x 20 W	2 x 36 W	2 x 40 W	2 x 58 W	2 x 140
40 A	68	57	53	36	15
63 A	101	86	79	54	23

Four serial compensated	
Unit power	4 x 18 W
40 A	36
63 A	54

Compact with integrated starter				
Unit power	7 W	10 W	18 W	26 W
40 A	78	65	55	36
63 A	101	85	71	47

- Fluorescent lamps with electronic ballast

Single				
Unit power	18 W	30 W	36 W	58 W
40 A	165	102	87	54
63 A	248	153	131	81

Twin			
Unit power	2 x 18 W	2 x 36 W	2 x 58 W
40 A	84	45	29
63 A	126	68	43

Triple serial compensated		
Unit power	3 x 14 W	3 x 18 W
40 A	62	51
63 A	84	69

Four serial compensated		
Unit power	4 x 14 W	4 x 18 W
40 A	52	39
63 A	73	55

With integrated electronic supply					
Unit power	7 W	11 W	15 W	20 W	23 W
40 A	280	175	126	98	84
63 A	392	245	176	137	118

5. GENERAL CHARACTERISTICS *(continued)*

- Discharge lamps with compensator

Metal halide						
Unit power	35 W	70 W	100 W	150 W	250 W	400 W
40 A	23	14	11	8	5	3
63 A	34	20	16	11	7	5

Low pressure sodium						
Unit power	18 W	35 W	55 W	90 W	135 W	180 W
40 A	30	15	11	8	5	5
63 A	45	23	16	11	7	7

High pressure sodium					
Unit power	70 W	150 W	250 W	400 W	1000 W
40 A	15	14	9	6	3
63 A	23	20	14	9	5

High pressure mercury					
Unit power	50 W	80 W	125 W	250 W	400 W
40 A	21	14	11	6	4
63 A	29	20	16	8	6

Mixed high pressure				
Unit power	100 W	160 W	250 W	400 W
40 A	14	9	7	4
63 A	19	12	8	5

6. CONFORMITIES AND APPROVALS

Compliance :

. EN 61095 / NFC 61-480 – IEC 61095

Certificates :

. NF (France)
. VDE (Germany)
. GOST (Russia)

Tropicalization :

. execution 2 (all climates) according to U.T.E. C 63-100 guide

Environment :

. complying with RoHS
. without halogen

7. AUXILIARIES

Auxiliaries :

. Signalling change-over switch NO+NC auxiliary cat. n° 412431.
. Used to indicate the position status of the contacts of the product with which it is associated.

Association of the auxiliaries :

. Auxiliaries are fitted on left hand side of contactor
. Maximum of 1 change-over switch auxiliary per contactor