MODULAR CONTACTORS AND LATCHING RELAYS

Lovato electric

ENERGY AND AUTOMATION

CN... modular contactors

They are electromagnetic control devices that are used mainly for switching of power loads in residential or service sectors. Mostly they are intended for lighting or heating control but can also control power to motors for air conditioning systems and pumps.
Their operation is identical to an industrial contactor: the contacts remain closed when the coil is powered and reopen as soon as it is powered off.

Main characteristics:

- silent operation
- operation flag indicator
- 1, 2 or 3 modules
- 2, 3 or 4 power poles
- rated current from 20A to 63A
- add-on auxiliary contacts
- lug clamp terminals
- IP20 terminals
- sealable terminal protection.

CNM... modular contactors with manual control

They operate as modular contactors, but can also be operated manually. Manual operation is used to carry out plant tests or to manually force start or stop operations usually activated by a control signal.
The function of manual control is very useful also in systems where electric power has double tariff; in these cases the contactor, controlled by an external signal, opens and excludes the non-priority loads during the high tariff time. If occasionally it is necessary to activate such loads in high tariff time, you can manually operate the contactor.

Main characteristics:

- silent operation
- operation flag indicator
- 3 positions hand toggle actuator (0 - Auto -I)
- 1 or 2 modules
- 2, 3 or 4 power poles
- rated current from 20A to 32A
- add-on auxiliary contacts
- lug clamp terminals
- IP20 terminals
- sealable terminal protection.

3 positions hand toggle actuator (0 - Auto -I

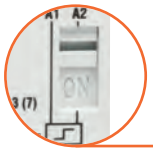
CNB... latching relays

They are control devices that operate on an impulse control signal. At each brief impulse to the coil there is a change in the contacts status which therefore remain in position without the need of continous coil power supply.
Consequently there is no heat dissipation on the electromagnet and therefore heating of the devices is remarkably reduced. This device is widely used for lighting control in residential or service sectors. The coil impulse is given by buttons that can be located at various points of the plant with a very simple wiring circuit. The latching relays are also equipped with a manual actuator and a selector that cut-off the coil supply putting the system out of service, for example in the case of maintenance.

Main characteristics:

- silent operation
- operation flag indicator
- 2 positions hand toggle actuator
- coil cut-off selector
- 1 or 2 modules
- 1, 2, 3 or 4 power poles
- rated current from 20A to 32A
- add-on auxiliary contacts
- lug clamp terminals
- IP20 terminals
- sealable terminal protection.

2 positions hand toggle actuator (0 – I)



Coil cut-off selector

Lovato electric

Contactors

CN20…
CN32 11… - CN32 20…

CN25…
CN32 10… - CN32 01…

CN40…

CN63…

Order code	Rated auxiliary supply voltage	Configuration and number of contacts		Qty per pkg	Wt
	[V]❶	NO	NC	n°	[kg]
One-pole or two-pole. 1 module. Ith 20A.					
CN20 11 024❼	24VAC/DC	1	1❸	10	0.135
CN20 11 220❼	220...230VAC❻	1	1❸	10	0.135
CN20 20 024❼	24VAC/DC	2	—	10	0.135
CN20 20 220❼	220...230VAC❻	2	—	10	0.135
CN20 02 024❼	24VAC/DC	—	2	10	0.135
CN20 20 220❼	220...230VAC❻	—	2	10	0.135
One-pole or two-pole. 1 module. Ith 32A.					
CN32 11 024❷❼	24VAC/DC	1	1❸	10	0.135
CN32 11 220❷❼	220...230VAC❻	1	1❸	10	0.135
CN32 20 024❷❼	24VAC/DC	2	—	10	0.135
CN32 20 220❷❼	220...230VAC❻	2	—	10	0.135
Three-pole or four-pole. 2 modules. Ith 25A.					
CN25 10 024❺	24VAC/DC	4❹	—	5	0.260
CN25 10 220❺	220...230VAC❻	4❹	—	5	0.260
CN25 01 024❺	24VAC/DC	3	1❹	5	0.260
CN25 01 220❺	220...230VAC❻	3	1❹	5	0.260
CN25 22 220❷	220...230VAC❻	2	2	5	0.260
Three-pole or four-pole. 2 modules. Ith 32A.					
CN32 10 024❺	24VAC/DC	4	—	5	0.260
CN32 10 220❺	220...230VAC❻	4	—	5	0.260
CN32 01 024❺	24VAC/DC	3	1❸	5	0.260
CN32 01 220❺	220...230VAC❻	3	1❸	5	0.260
Three-pole or four-pole. 3 modules. Ith 40A.					
CN40 10 024❺	24VAC/DC	4❹	—	5	0.425
CN40 10 220❺	220...230VAC❻	4❹	—	5	0.425
CN40 01 024❺	24VAC/DC	3	1❹	5	0.425
CN40 01 220❺	220...230VAC❻	3	1❹	5	0.425
CN40 22 220❺	220...230VAC❻	2	2❹	5	0.425
Three-pole or four-pole. 3 modules. Ith 63A.					
CN63 10 024	24VAC/DC	4❹	—	5	0.425
CN63 10 220	220...230VAC❻	4❹	—	5	0.425
CN63 01 024	24VAC/DC	3	1❹	5	0.425
CN63 01 220	220...230VAC❻	3	1❹	5	0.425
CN63 22 220	220...230VAC❻	2	2❹	5	0.425

❶ Other voltages on request. Consult Technical support (Tel. +39 035 4282422 - E-mail: service@lovatoelectric.com)
❷ 2NC version supplied on request.
❸ The last (NC) pole has the same characteristics as the power pole. It can therefore be used indifferently as an auxiliary or as a NC power contact.
❹ The fourth NO or NC pole has the same characteristics as the power poles; therefore it can be used indifferently as auxiliary or as power contact.
❺ On request can be supplied: 4NC power poles. Consult Technical support; see contact details on inside front cover.
❻ Can also operate at 220VDC.
❼ No auxiliary contacts can be mounted.

Maximum number of contactors side-by-side
When contactors are mounted side by side and operate in continuous service (1 hour), spacing is needed between equipment to consent appropriate cooling.
9mm spacing is required; there is an accessory, called half-module spacer, order code CNX 80, for this specific type of mounting. The following table indicates details of the space needed between each.

Maximum number of contactors to be mounted side-by-side without spacing; the CNX 80 spacer is required when the number of pieces is more than the indicated below:

	CN20	CN32	CN25	CN40	CN63
Ambient temperature ≤40°C	3	3	3	3	3
Ambient temperature >40°...55°C	2	2	2	3	2

General characteristics
- DC powered magnetic core system assuring silent operation and noise damping during the control phase
- Overvoltage protection circuit and voltage peak limitation of the magnetic core
- Equipped with 2 or 4 closing contacts of equal capacity permitting use in power or auxiliary circuits
- Operation flag indicator.

Operational characteristics

Type	IEC conventional free-air thermal current Ith in AC1 ≤400V [A]	Operational current in AC3 ≤400V [A]	Protection fuse gG (IEC) [A]
One-pole or two-pole.			
CN20...	20	9	20
CN32...	32	9	32
Three-pole or four-pole.			
CN25...	25	8.5	25
CN32...	32	8.5	32
CN40...	40	22	63
CN63...	63	30	80

- Noise level:
  - Closed contactor <20dB
  - Making/breaking operation ≤50dB
- IEC degree of protection: IP20
- Mounting on 35mm DIN rail (IEC/EN 60175).

Operational characteristics of contactor-incorporated auxiliary contacts

Type	IEC insulation voltage Ui	IEC rating (AC15 category)	
		230V	400V
	[V]	[A]	[A]
CN20...	440	6	6
CN25...	440	6	4
CN32...	440	6	4
CN40...	500	6	4
CN63...	500	6	4

Utilisation
- Lighting systems
- Electric home heating
- Heat pumps
- Conditioning
- Ventilation
- Civil installations.

Certifications and compliance
Certifications obtained: EAC.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1, IEC/EN 60947-5-1, IEC/EN 61095.

AND LATCHING RELAYS

Contactors with manual control

CNM20... - CNM32 20...

CNM32 10...

Order code	Rated auxiliary supply voltage	Configuration and number of contacts		Qty per pkg	Wt
	[V]❶	NO	NC	n°	[kg]
One-pole or two-pole. 1 module. Ith 20A.					
CNM20 11 024❷❼	24VAC/DC	1	1❸	10	0.135
CNM20 11 220❷❼	220...230VAC❻	1	1❸	10	0.135
CNM20 20 024❷❼	24VAC/DC	2	—	10	0.135
CNM20 20 220❷❼	220...230VAC❻	2	—	10	0.135
One-pole or two-pole. 1 module. Ith 32A.					
CNM32 20 024❷❼	24VAC/DC	2	—	10	0.135
CNM32 20 220❷❼	220...230VAC❻	2	—	10	0.135
Three-pole or four-pole. 2 module. Ith 32A.					
CNM32 10 024❷❼	24VAC/DC	4❹	—	5	0.260
CNM32 10 220❷❼	220...230VAC❻	4❹	—	5	0.260

❶ Other voltages on request. Consult Technical support (Tel. +39 035 4282422 - E-mail: service@lovatoelectric.com)
❷ 2NC version supplied on request.
❸ The last (NC) pole has the same characteristics as the power pole. It can therefore be used indifferently as an auxiliary or as a NC power contact.
❹ The fourth NO or NC pole has the same characteristics as the power poles; therefore it can be used indifferently as auxiliary or as power contact.
❺ On request can be supplied: 2NO + 2NC or 4NC power poles. Consult Technical support; see contact details on inside front cover.
❻ Can also operate at 220VDC.
❼ No auxiliary contacts can be mounted.

Maximum number of contactors side-by-side
When contactors are mounted side by side and operate in continuous service (1 hour), spacing is needed between equipment to consent appropriate cooling.
9mm spacing is required; there is an accessory, called half-module spacer, order code CNX 80, for this specific type of mounting. The following table indicates details of the space needed between each.

Maximum number of contactors to be mounted side-by-side without spacing; the CNX 80 spacer is required when the number of pieces is more than the indicated below:

	CNM20	CNM32
Ambient temperature ≤40°C	3	3
Ambient temperature >40°...55°C	2	2

General characteristics
- DC powered magnetic core system assuring silent operation and noise damping during the control phase
- Overvoltage protection circuit and voltage peak limitation of the magnetic core
- Equipped with 2 or 4 closing contacts of equal capacity permitting use in power or auxiliary circuits
- Operation flag indicator
- Handle functions
  Position A: contactor function.
  Position B: contactor permanently switched off, even in case of coil control voltage is present.
  Position I: contactor closed manually; when the coil is supplied the handle automatically moves to A position.

Operational characteristics

Type	IEC conventional free-air thermal current Ith in AC1 ≤400V [A]	Operational current in AC3 ≤400V [A]	Protection fuse gG (IEC) [A]
One-pole or two-pole.			
CNM20...	20	9	20
CNM32...	32	9	32
Three-pole or four-pole.			
CNM32...	32	8.5	32

- Noise level:
  • Closed contactor <20dB
  • Making/breaking operation ≤50dB
- IEC degree of protection: IP20
- Mounting on 35mm DIN rail (IEC/EN 60175).

Operational characteristics of contactor-incorporated auxiliary contacts

Type	IEC insulation voltage Ui	IEC rating (AC15 category)	
		230V	400V
	[V]	[A]	[A]
CNM20...	440	6	6
CNM32...	440	6	4

Utilisation
- Lighting systems
- Electric home heating
- Heat pumps
- Conditioning
- Ventilation
- Civil installations.

Certifications and compliance
Certifications obtained: EAC.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1, IEC/EN 60947-5-1, IEC/EN 61095.

Add-on blocks and accessories for contactors and contactors with manual control

CNH...

CNP2

Order code	Characteristics	Max qty per contactor	Qty per pkg	Wt
		n°	n°	[kg]
Auxiliary contacts❽.				
CNH 11❽	1NO + 1NC	1	1	0.044
CNH 20❽	2NO	1	1	0.044
Set for terminal protection (also sealable).				
CNP 0	For CN20..., CNM20... and CNM32...	2	1❾	0.001
CNP 1	For CN25... and CNM32...	2	1❾	0.002
CNP 2	For CN40... and CN63...	2	1❾	0.003
Spacer.				
CNX 80	1/2 mod. wide	1	10	0.013

Operational characteristics for auxiliary contacts
- IEC rated insulation voltage: 440VAC
- IEC conventional free air thermal current Ith: 6A
- Minimum switching capacity: 5mA 12V
- Conductor section: 1...2.5mm²
- Maximum tightening torque: 1Nm.

Certifications and compliance
Certifications obtained: EAC.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1, IEC/EN 60947-5-1, IEC/EN 61095.

❽ Not suitable for CN20..., CN32 11..., CN32 20..., CNM20... and CNM32... modular contactors.
❾ Set of 2 pieces.

Latching relays

CNB20... - CNB32 20...

CNB32 10...

Order code	Rated auxiliary supply voltage	Configuration and number of contacts		Qty per pkg	Wt
	[V]❶	NO	NC	n°	[kg]
One-pole or two-pole. 1 module. Ith 20A.					
CNB20 10 230	230VAC	1	—	8	0.135
CNB20 11 012	12VAC	1	1❷	8	0.135
CNB20 11 024	24VAC	1	1❷	8	0.135
CNB20 11 230	230VAC	1	1❷	8	0.135
CNB20 20 012	12VAC	2	—	8	0.135
CNB20 20 024	24VAC	2	—	8	0.135
CNB20 20 230	230VAC	2	—	8	0.135
One-pole or two-pole. 1 module. Ith 32A.					
CNB32 20 012	12VAC	2	—	8	0.135
CNB32 20 024	24VAC	2	—	8	0.135
CNB32 20 230	230VAC	2	—	8	0.135
Three-pole or four-pole. 2 module. Ith 32A.					
CNB32 10 012	12VAC	4❸	—	4	0.195
CNB32 10 024	24VAC	4❸	—	4	0.195
CNB32 10 230	230VAC	4❸	—	4	0.195

❶ Other voltages on request. Consult Technical support (Tel. +39 035 4282422 - E-mail: service@lovatoelectric.com)
❷ The last (NC) pole has the same characteristics as the power pole. It can therefore be used indifferently as an auxiliary or as a NC power contact.
❸ The fourth NO or NC pole has the same characteristics as the power poles; therefore it can be used indifferently as auxiliary or as power contact.

General characteristics
- Mechanical system that keeps the contactor in position without the coil being powered
- Include a manual control system and a switch to lock the coil command
- Equipped with 2 or 4 closing contacts of equal capacity permitting use in power or auxiliary circuits
- Operation flag indicator
- No consumption of the closed electromagnet contactor with considerable advantages in reducing the dissipated heat.

Operational characteristics

Type	IEC conventional free-air thermal current Ith in AC1 ≤400V [A]	Operational current in AC3 ≤400V [A]	Protection fuse gG (IEC) [A]
One-pole or two-pole.			
CNB20...	20	9	20
CNB32...	32	9	32
Three-pole or four-pole.			
CNB32...	32	8.5	32

- Noise level:
  - Closed contactor 0dB (mechanically closed)
  - Making/breaking operation ≤50dB
- IEC degree of protection: IP20
- Mounting on 35mm DIN rail (IEC/EN 60175).

Operational characteristics of contactor-incorporated auxiliary contacts

Type	IEC insulation voltage Ui	IEC rating (AC15 category)	
		230V	400V
	[V]	[A]	[A]
CNB20...	440	6	6
CNB32...	440	6	4

Utilisation
- Lighting systems
- Electric home heating
- Heat pumps
- Conditioning
- Ventilation
- Civil installations.

Certifications and compliance
Certifications obtained: EAC.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1, IEC/EN 60947-5-1, IEC/EN 61095, IEC/EN 60669-1, IEC/EN 61095.

Add-on blocks and accessories

CNBX...

CNP3

Order code	Characteristics	Max qty per contactor	Qty per pkg	Wt
		n°	n°	[kg]
Auxiliary contacts.				
CNBX 11	1NO + 1NC	1	1	0.032
CNBX 20	2NO	1	1	0.032
Set for terminal protection (also sealable).				
CNP 3	For CNB...	❹	1❺	0.002

❹ To cover all the terminals, mount: 2 pieces for one module latching relay; 2 set of 2 peices for two module latching relay.
❺ Set of 2 pieces.

Operational characteristics for auxiliary contacts
- IEC rated insulation voltage: 440VAC
- IEC conventional free air thermal current Ith: 6A
- Minimum switching capacity: 5mA 12V
- Conductor section: 1...2.5mm^2
- Maximum tightening torque: 1Nm.

Certifications and compliance
Certifications obtained: EAC.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 61095.

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