



Elevator

How to choose contactors and other electrical components?

Control Panel Technical Guide
EN 81-20 standard

Lift control



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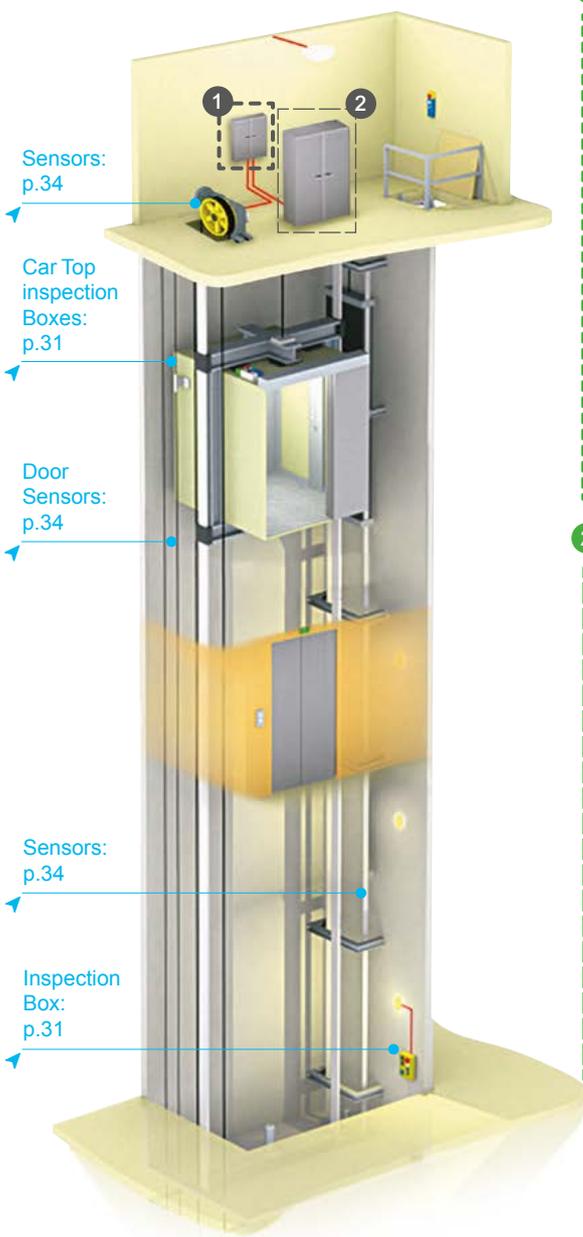
In this technical guide...

The common electrical architectures and electrical components for your elevator machinery are presented, in accordance with the specific standards and design best practices. Key electrotechnical rules are also covered. The most appropriate circuit breaker, contactor, accessory product references are given, related to typical diagrams. This technical guides shows an overview of the ranges of complementary products like enclosures, push buttons, sensors, and other core components...

Taking into account the new EN 81-20 standard may lead to a questioning of usual technical options. Aware of this fact, Schneider Electric offers to designers selection tables established in accordance with the new standard and the recommendations.

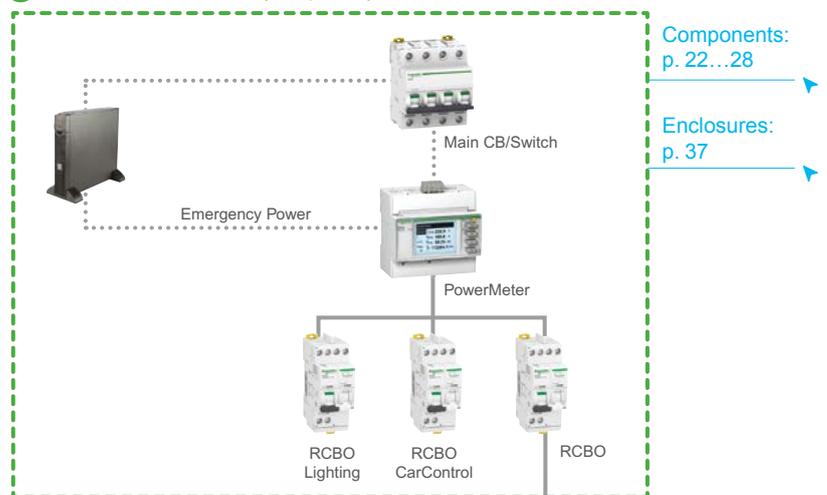


EN 81-20

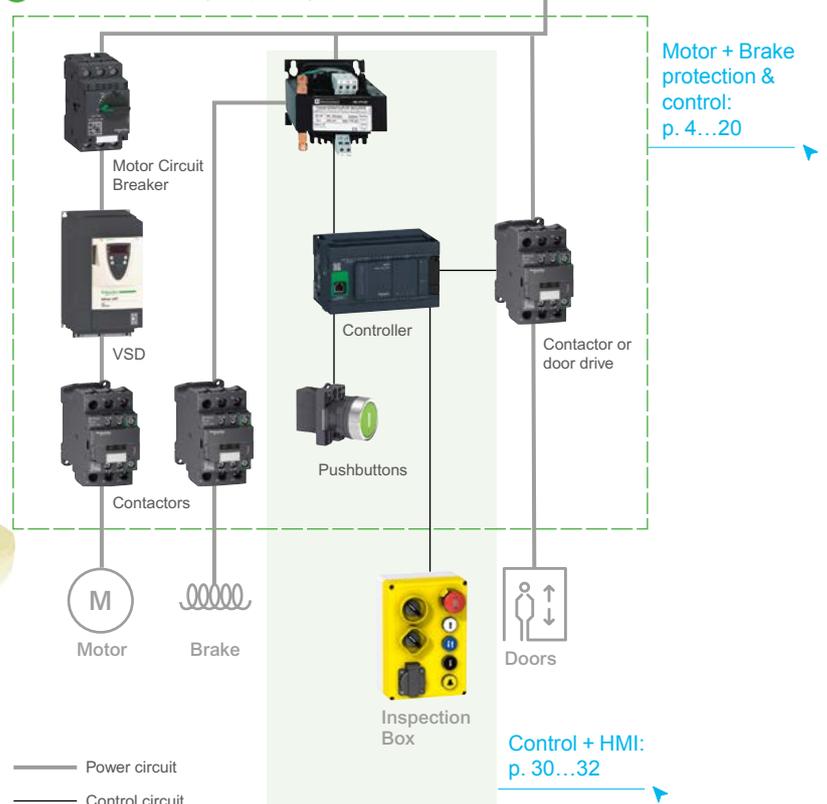


Other electrical aspects: p. 17... 19
 • Utilization categories of contactors
 • Auxiliary contacts of contactors and relays.

1 Electrical distribution (Chapter B)



2 Elevator control (Chapter A)



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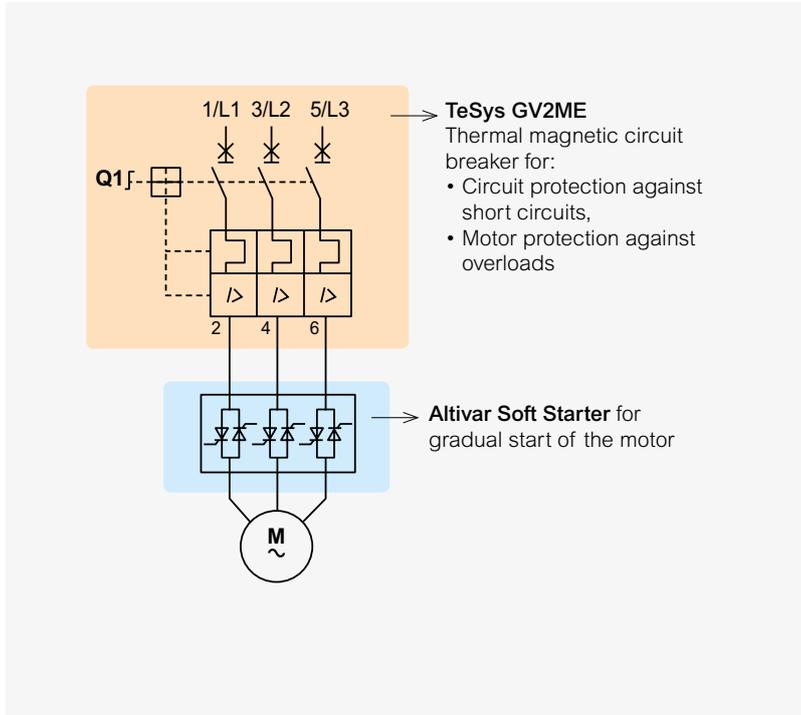
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Hydraulic elevators – Pump motor control

Motor starter with circuit breaker and soft starter



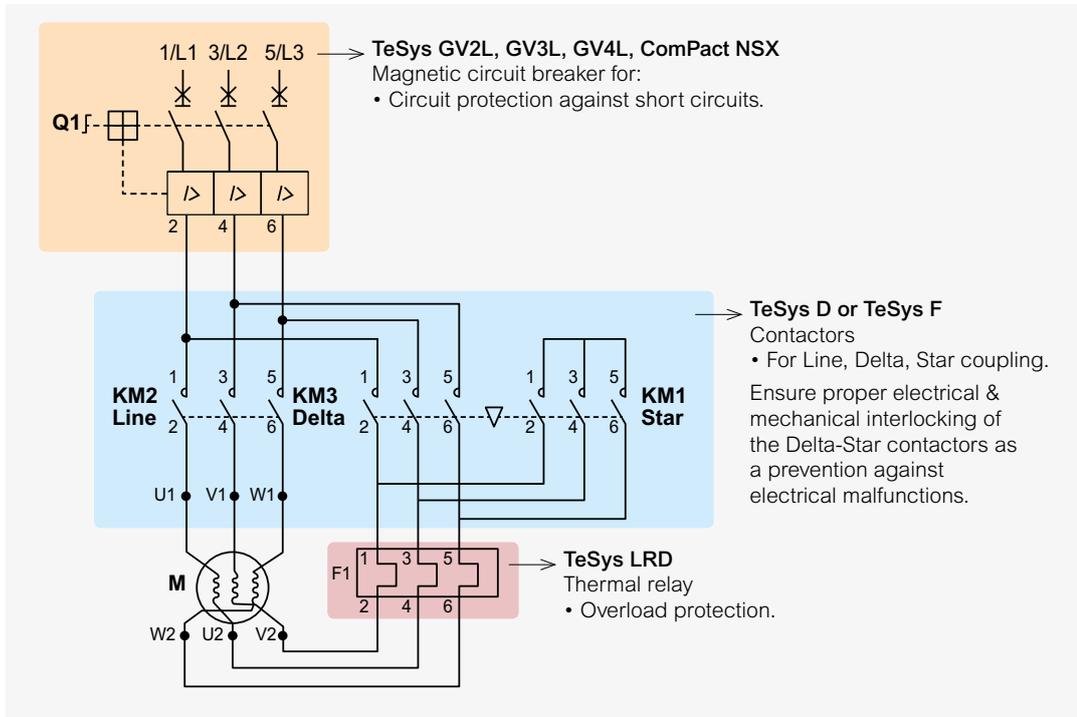
Circuit breaker / Soft starter - Selection according to the motor power

Motor		Thermal-magnetic circuit breaker	Altivar soft starter	
				
Rated Load Amperage (RLA) up to 440 V (A ~)	Indicative corresponding average rated power (Pn) at 400 V (kW)	(Q1)	Single phase 230 V	Three-phase 400 V
		Product references	Product references	Product references
2.5	1.1	GV2ME08	ATS01N103FT	ATS01N206QN
3.5	1.5	GV2ME08	ATS01N106FT	ATS01N206QN
5	2.2	GV2ME10	ATS01N106FT	ATS01N206QN
6.5	3	GV2ME14	ATS01N106FT	ATS01N206QN
8.4	4	GV2ME14	ATS01N109FT	ATS01N209QN
11	5.5	GV2ME16	ATS01N112FT	ATS01N212QN
14.8	7.5	GV2ME20	ATS01N125FT	ATS01N222QN
18.1	9	GV2ME21	ATS01N125FT	ATS01N222QN
21	11	GV2ME22	ATS01N125FT	ATS01N222QN
28.5	15	GV2ME32	No	ATS01N232QN

[Go to auxiliary devices p.17](#)

Hydraulic elevators – Pump motor control

Star-Delta Motor Starter



Circuit breaker / Thermal relay / contactors - Selection according to the motor power

EN81-20 specifications:

- At least 1 phase controlled by 2 separate contactors
- Type 1 coordination between contactor and protection
- Contactor selected for 90% AC3 and 10% AC4; utilization category to ensure 1 million cycles.

Motor				Magnetic circuit breaker	Contactors						Thermal relay
Rated Load Amperage (RLA) up to 440 V (A ~)	Indicative corresponding average nominal power (Pn) at 400 V (kW)	Indicative nominal current in:		Product references	0.5 million cycles			1 million cycles			Under Delta Ctr (class 10 A) + indep. mounting accessory
		Delta wiring (A ~)	Star wiring (A ~)		Line	Delta	Star	Line	Delta	Star	
15.5	7.5	8.9	5.2	GV2L20	LC1D09**	LC1D09**	LC1D09**	LC1D12**	LC1D12**	LC1D09**	LRD14 + LAD7B106
22	11	12.7	7.3	GV3L25	LC1D12**	LC1D12**	LC1D09**	LC1D25**	LC1D25**	LC1D12**	LRD21 + LAD7B106
29	15	16.7	9.7	GV3L32	LC1D18**	LC1D18**	LC1D12**	LC1D32**	LC1D32**	LC1D18**	LRD21 + LAD7B106
35	18.5	20.2	11.7	GV3L40	LC1D25**	LC1D25**	LC1D12**	LC1D40**	LC1D40**	LC1D18**	LRD22 + LAD7B106
41	22	23.7	13.7	GV3L50	LC1D32**	LC1D32**	LC1D18**	LC1D65A**	LC1D65A**	LC1D25**	LRD32 + LAD7B106
55	30	31.8	18.3	GV3L65	LC1D50A**	LC1D50A**	LC1D25**	LC1D80**	LC1D80**	LC1D40A**	LRD35 + LAD7B106
66	37	38.1	22.0	GV3L73	LC1D65A**	LC1D65A**	LC1D25**	LC1D115**	LC1D115**	LC1D50A**	LRD350 + LAD96560
80	45	46.2	26.7	GV4L115	LC1D80**	LC1D80**	LC1D40A**	LC1D150**	LC1D150**	LC1D65A**	LRD350 + LAD96560
97	55	56.0	32.3	GV4L115	LC1D115**	LC1D115**	LC1D65A**	LC1F185**	LC1F185**	LC1D80**	LRD365 + LAD96560
132	75	76.2	44.0	NSX160NMA	LC1D150**	LC1D150**	LC1D80**	LC1F185**	LC1F185**	LC1D150**	LRD380 + LAD96560

(*) Replace dots by coil code (below)

Coil codes

Coil voltage	12 V	24 V	230 V	400 V	415 V
AC (50 – 60 Hz)	-	B7	P7	V7	N7
DC	JD	BD	-	-	-
DC low consumption	JL	BL	-	-	-

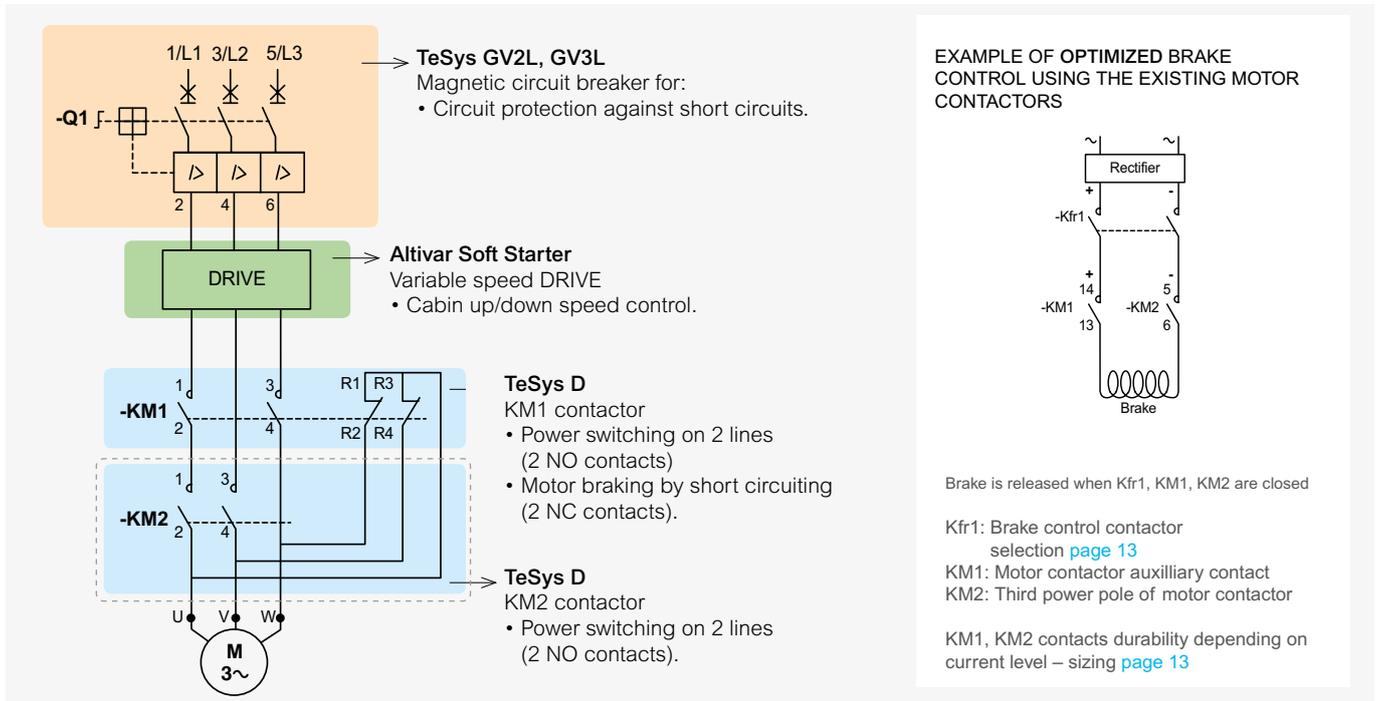
Coil codes for LC1DxxA

Coil voltage	24 V (DC only)	24-60 V AC-DC	48-130 V AC-DC	100-250 V AC-DC
(AC: 50 – 60 Hz)	BBE	BNE	EHE	KUE

[Go to interlock and auxiliary devices p.17](#)

Electric elevators – Synchronous motor control

Up/Down Control – Variable Speed – Solution 1



Motor			Upstream magnetic circuit breaker		Drive		Downstream contactors	
							 (KM1) (KM2) 4-pole (2 NC, 2 NO) 3-pole	
Rated Load Amperage (RLA)	Indicative corresponding average nominal power (Pn)		Product references	Product references	Line current (A)		Product references*	Product references*
(A ~)	(kW)	(HP)			At 380 V	At 480 V		
Un = 400 V - 3-phase (380...480 V) / 50-60 Hz								
10	4	5	GV2L16	ATV71LD10N4Z	14.1	11.5	LC1D128**	LC1D12**
14	5.5	7.5	GV2L22	ATV71LD14N4Z	20.3	17	LC1D188**	LC1D18**
17	7.5	10	GV3L40	ATV71LD17N4Z	36.6	30	LC1D258**	LC1D25**
27	11	15	GV3L50	ATV71LD27N4Z	48	39	LC1D40008** ^(a) LC1P40008** ^(b)	LC1D32**
33	15	20	GV3L50	ATV71LD33N4Z	45.5	37.5	LC1D40008** ^(a) LC1P40008** ^(b)	LC1D38**/LC1D40A**
48	22	30	GV3L50	ATV71LD48N4Z	50	42	LC1D65008** ^(a) LC1P65008** ^(b)	LC1D50A**
Un = 230 V - 3-phase (200...240 V) / 50-60 Hz					At 200 V	At 240 V		
27	5.5	7.5	GV3L40	ATV71LD27M3	35	30.8	LC1D40008** ^(a) LC1P40008** ^(b)	LC1D32**
33	7.5	10	GV3L50	ATV71LD33M3	45	39.4	LC1D40008** ^(a) LC1P40008** ^(b)	LC1D38**
54	11	15	GV3L65	ATV71LD54M3	53.3	45.8	LC1D65008** ^(a) LC1P65008** ^(b)	LC1D65A**
66	15	20	GV3L73	ATV71LD66M3	71.7	61.6	LC1D80008** ^(a) LC1P80008** ^(b)	LC1D80**
Un = 230 V - 1-phase (200...240 V) / 50-60 Hz					At 200 V	At 240 V		
17	4	5	GV3L40	ATV71LD27M3	34.9	29.9	LC1D258**	LC1D25**
27	5.5	7	GV3L50	ATV71LD33M3 + line choke ⁽¹⁾	47.3	40.1	LC1D40008** ^(a) LC1P40008** ^(b)	LC1D32**

(1) Line choke 520 uH ref.: VW3A58502 - (a) AC coil - (b) DC coil.

(*) Replace dots by coil code (below)

Coil codes

Coil voltage	12 V	24 V	230 V	400 V	415 V
AC (50 – 60 Hz)	-	B7	P7	V7	N7
DC	JD	BD	-	-	-
DC low consumption	JL	BL	-	-	-

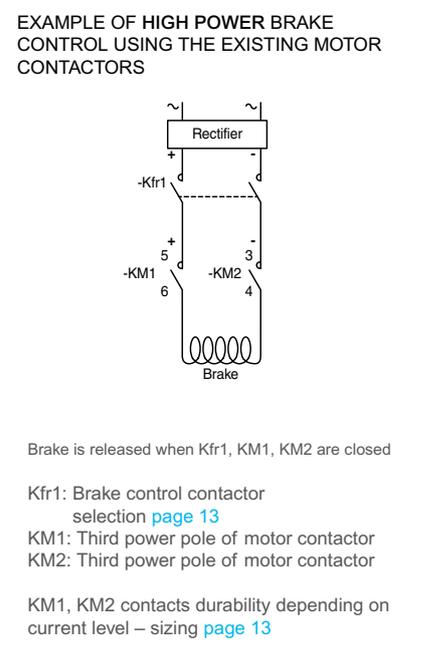
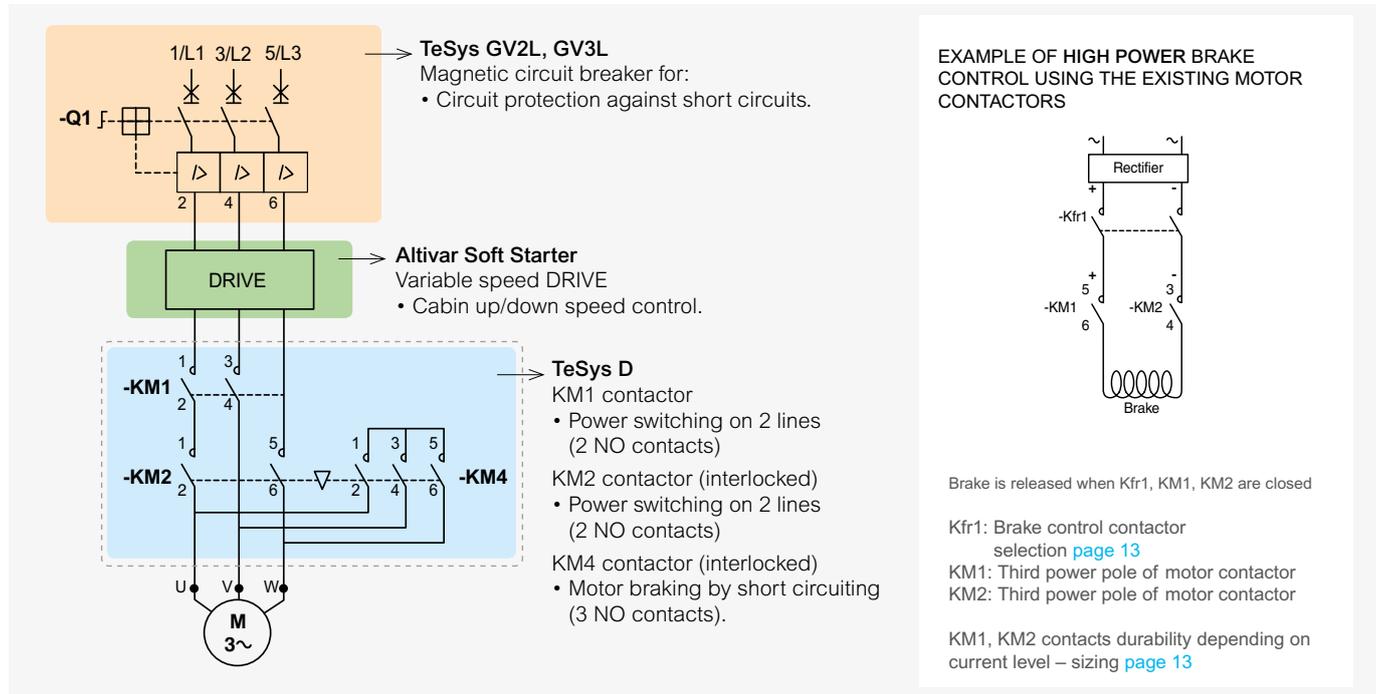
Coil codes for LC1DxxA

Coil voltage	24 V (DC only)	24-60 V AC-DC	48-130 VAC-DC	100-250 V AC-DC
(AC: 50 – 60 Hz)	BBE	BNE	EHE	KUE

Go to brake control contactor selection and durability sizing p. 13

Electric elevators – Synchronous motor control

Up/Down Control – Variable Speed – Solution 2



Motor			Upstream magnetic circuit breaker	Drive	Downstream contactors	
Rated Load Amperage (RLA)	Indicative corresponding average nominal power (Pn)				3-pole	
(A ~)	(kW)	(HP)	Product references	Product references	Line current (A)	Product references*
Un = 400 V - 3-phase (380...480 V) / 50-60 Hz					At 380 V	At 480 V
10	4	5	GV2L16	ATV71LD10N4Z	14.1	11.5
14	5.5	7.5	GV2L22	ATV71LD14N4Z	20.3	17
17	7.5	10	GV3L40	ATV71LD17N4Z	36.6	30
27	11	15	GV3L50	ATV71LD27N4Z	48	39
33	15	20	GV3L50	ATV71LD33N4Z	45.5	37.5
48	22	30	GV3L50	ATV71LD48N4Z	50	42
Un = 230 V - 3-phase (200...240 V) / 50-60 Hz					At 200 V	At 240 V
27	5.5	7.5	GV3L40	ATV71LD27M3	35	30.8
33	7.5	10	GV3L50	ATV71LD33M3	45	39.4
54	11	15	GV3L65	ATV71LD54M3	53.3	45.8
66	15	20	GV3L73	ATV71LD66M3	71.7	61.6
Un = 230 V - 1-phase (200...240 V) / 50-60 Hz					At 200 V	At 240 V
17	4	5	GV3L40	ATV71LD27M3	34.9	29.9
27	5.5	7	GV3L50	ATV71LD33M3 + line choke ⁽¹⁾	47.3	40.1

(1) Line choke 520 uH ref.: VW3A58502

(*) Replace dots by coil code (below)

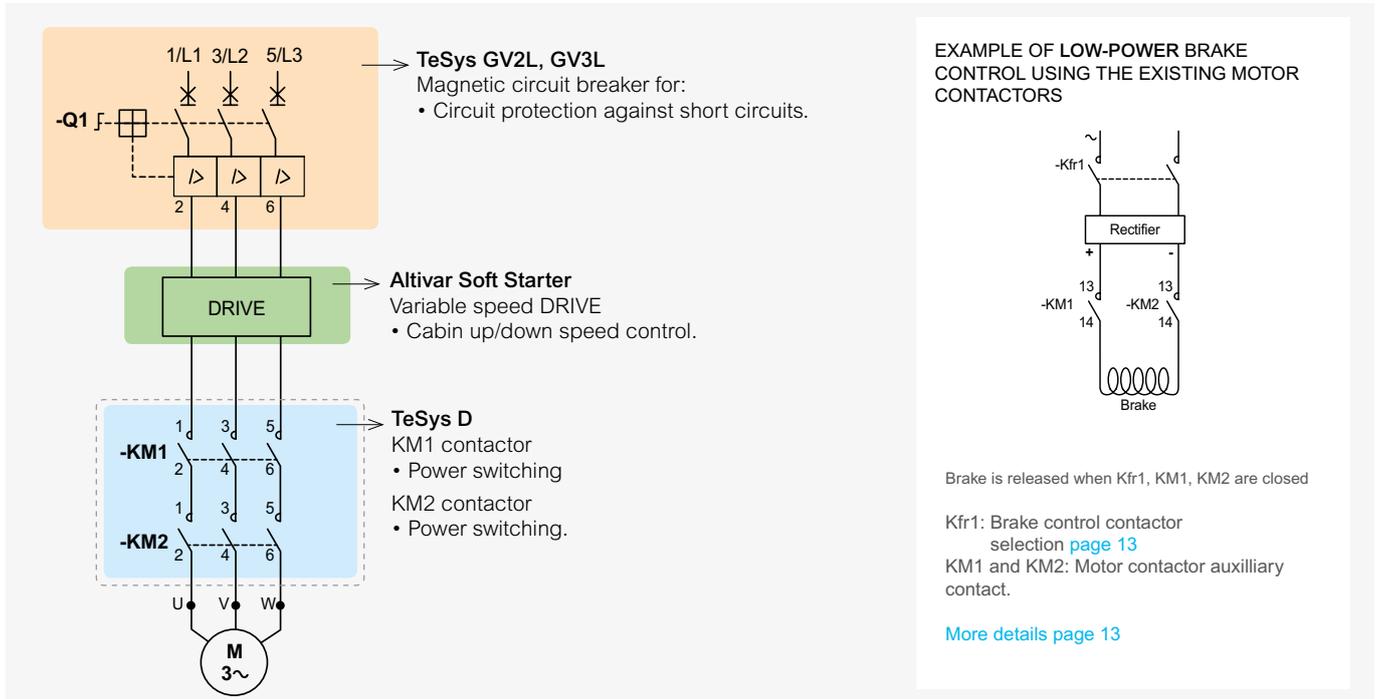
Coil codes	12 V	24 V	230 V	400 V	415 V
AC (50 – 60 Hz)	-	B7	P7	V7	N7
DC	JD	BD	-	-	-
DC low consumption	JL	BL	-	-	-

Coil codes for LC1DxxA	24 V (DC only)	24-60 V AC-DC	48-130 VAC-DC	100-250 V AC-DC
Coil voltage (AC: 50 – 60 Hz)	BBE	BNE	EHE	KUE

[Go to brake control contactor selection and durability sizing p. 13](#)

Electric elevators – Asynchronous motor control

Up/Down Control – Variable speed



Motor			Upstream magnetic circuit breaker	Drive	Downstream contactors	
Rated Load Amperage (RLA)	Indicative corresponding average nominal power (Pn)				3-pole	
(A ~)	(kW)	(HP)	Product references	Product references	Line current (A)	Product references*
Un = 400 V - 3-phase (380...480 V) / 50-60 Hz					At 380 V	At 480 V
10	4	5	GV2L16	ATV71LD10N4Z	14.1	11.5
14	5.5	7.5	GV2L22	ATV71LD14N4Z	20.3	17
17	7.5	10	GV3L40	ATV71LD17N4Z	36.6	30
27	11	15	GV3L50	ATV71LD27N4Z	48	39
33	15	20	GV3L50	ATV71LD33N4Z	45.5	37.5
48	22	30	GV3L50	ATV71LD48N4Z	50	42
Un = 230 V - 3-phase (200...240 V) / 50-60 Hz					At 200 V	At 240 V
27	5.5	7.5	GV3L40	ATV71LD27M3	35	30.8
33	7.5	10	GV3L50	ATV71LD33M3	45	39.4
54	11	15	GV3L65	ATV71LD54M3	53.3	45.8
66	15	20	GV3L73	ATV71LD66M3	71.7	61.6
Un = 230 V - 1-phase (200...240 V) / 50-60 Hz					At 200 V	At 240 V
17	4	5	GV3L40	ATV71LD27M3	34.9	29.9
27	5.5	7	GV3L50	ATV71LD33M3 + line choke (1)	47.3	40.1

(1) Line choke 520 uH ref.: VW3A58502

(*) Replace dots by coil code (below)

Coil codes

Coil voltage	12 V	24 V	230 V	400 V	415 V
AC (50 – 60 Hz)	-	B7	P7	V7	N7
DC	JD	BD	-	-	-
DC low consumption	JL	BL	-	-	-

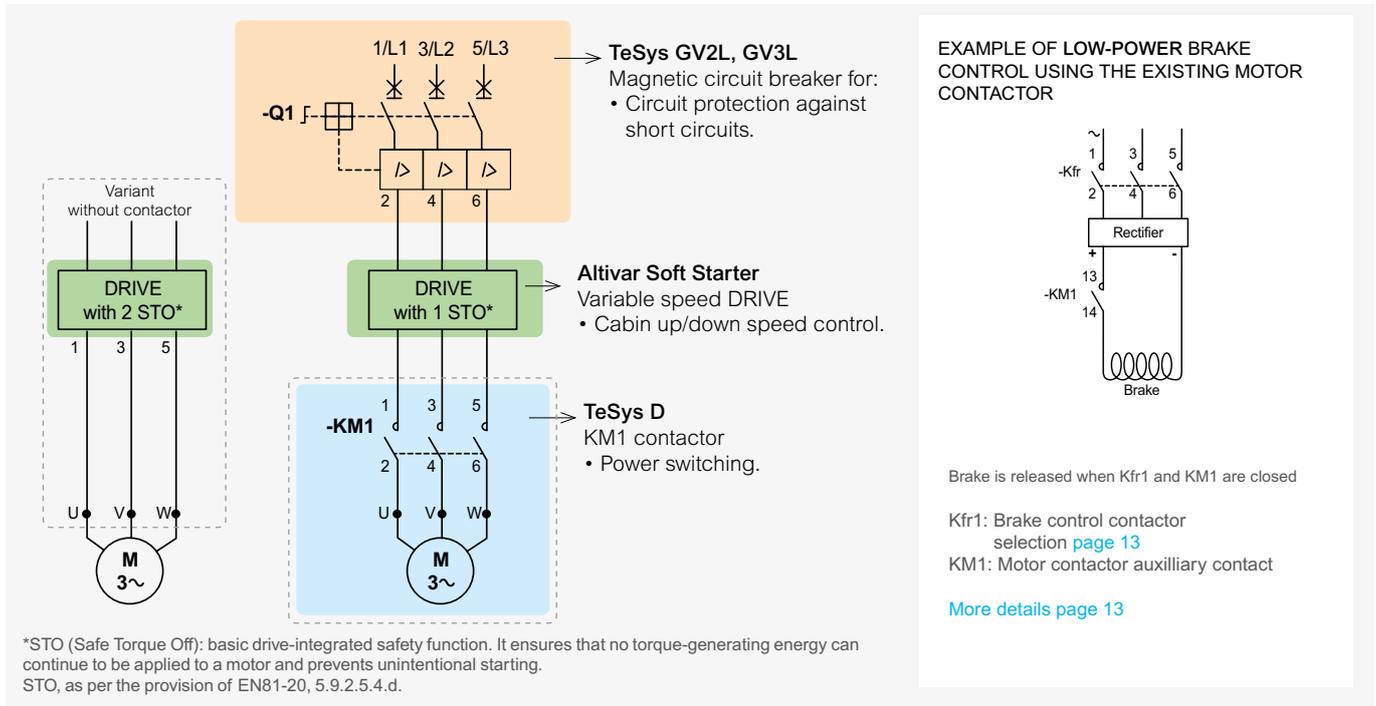
Coil codes for LC1DxxA

Coil voltage	24 V (DC only)	24-60 V AC-DC	48-130 VAC-DC	100-250 V AC-DC
(AC: 50 – 60 Hz)	BBE	BNE	EHE	KUE

[Go to brake control contactor selection and durability sizing p. 13](#)

Electric elevators – Asynchronous motor control

Up/Down Control – Variable speed – Safe Torque Off function*



Motor		Upstream magnetic circuit breaker	Drive	Downstream contactors
Rated Load Amperage (RLA)	Indicative corresponding average nominal power (Pn)	(Q1)		(KM1)
(A ~)	(kW) (HP)	Product references	Product references	3-pole
Un = 400 V - 3-phase (380...480 V) / 50-60 Hz				Product references*
10	4 5	GV2L16	ATV71LD10N4Z	At 380 V At 480 V
14	5.5 7.5	GV2L22	ATV71LD14N4Z	14.1 11.5
17	7.5 10	GV3L40	ATV71LD17N4Z	20.3 17
27	11 15	GV3L50	ATV71LD27N4Z	36.6 30
33	15 20	GV3L50	ATV71LD33N4Z	48 39
48	22 30	GV3L50	ATV71LD48N4Z	45.5 37.5
Un = 230 V - 3-phase (200...240 V) / 50-60 Hz				LC1D50A**
27	5.5 7.5	GV3L40	ATV71LD27M3	50 42
33	7.5 10	GV3L50	ATV71LD33M3	At 200 V At 240 V
54	11 15	GV3L65	ATV71LD54M3	35 30.8
66	15 20	GV3L73	ATV71LD66M3	45 39.4
Un = 230 V - 1-phase (200...240 V) / 50-60 Hz				LC1D32**
17	4 5	GV3L40	ATV71LD27M3	45 39.4
27	5.5 7	GV3L50	ATV71LD33M3 + line choke (1)	53.3 45.8
				LC1D65A**
				LC1D80**
				LC1D25**
				LC1D32**

(1) Line choke 520 uH ref.: VW3A58502

(*) Replace dots by coil code (below)

Coil codes	12 V	24 V	230 V	400 V	415 V
AC (50 – 60 Hz)	-	B7	P7	V7	N7
DC	JD	BD	-	-	-
DC low consumption	JL	BL	-	-	-

Coil codes for LC1DxxA	24 V (DC only)	24-60 V AC-DC	48-130 VAC-DC	100-250 V AC-DC
Coil voltage (AC: 50 – 60 Hz)	BBE	BNE	EHE	KUE

[Go to brake control contactor selection and durability sizing p. 13](#)

Safety brake

Introduction



Role of the Safety brake

As long as the lifting motor is not powered, its shaft is held locked by the safety brake. This system can keep the car motionless when it is idle and stop it in cases of emergency or a power failure. It should be distinguished from the parachute brake which stops the car in the event of a fall.

Manual and electrical control

The safety brake can be opened manually (handle) to release the car in some circumstances. In normal operation, opening is obtained by powering its control electromagnet with direct current.

2 types of safety brakes:

- **Release without over-excitation**
Safety brake of this type is generally combined with an asynchronous motor, because of the inertia of the motor and of its gearbox that intrinsically reduce the car's movements.
- **Release with over-excitation**
Used in combination with a synchronous motor without gearbox that does not hold the car when it is no longer energized. This is a high-power brake, a temporary over-voltage (over-excitation) is applied to the release circuit to accelerate the opening of the shoes. The voltage becomes normal once the shoes are open.

Braking control circuit

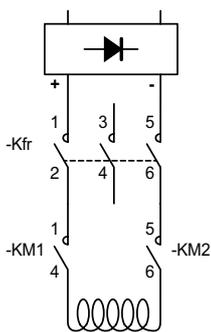
Braking is performed when the coil is no longer powered, following the opening of:

A brake contactor (here denoted Kfr), reflecting an action on a chain of safety contacts (e.g. emergency stop)

OR

Contacts KM1 or KM2, reflecting the state of the motor contactors.

Cf. selection advices and tables for Kfr and KM1, KM2 p. 11-13



Release coil
Typical braking control circuit

Braking control on DC or AC circuit

Brake release coil must be supplied with DC current from a rectifier. Depending on the need and constraints, the Kfr brake contactor can be wired either:

To the DC output of the rectifier

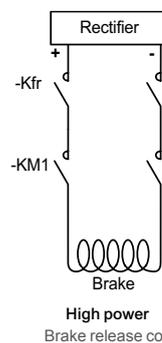
Advantage: quick brake release, useful for emergency stoppage.

Drawback: strong and noisy arc between contacts when opening, due to the overvoltage caused by the coil.

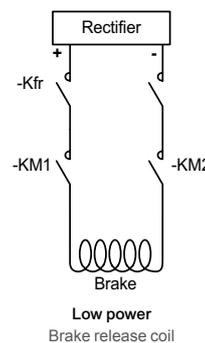
To the AC input of the rectifier

Advantage: no overvoltage applied to Kfr contacts when opening, less noise, better durability.

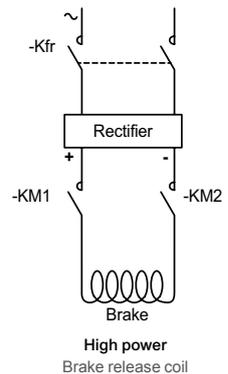
Drawback: longer braking response time (6-10 times longer than Kfr on DC output).



High power
Brake release coil



Low power
Brake release coil



High power
Brake release coil

Kfr are contactor poles, they are adapted to high current breaking
KM1, KM2 are auxiliary contacts of the motor contactors, with lower breaking capacity.



- EN 81-20 standard for lifts – A particular impact on electrical design
- EN 81-20: 2104 sets out safety requirements for construction and installation

"The main contactors with their associated short-circuit protective devices shall have type "1" coordination in accordance with EN 60947-4-1:2010, 8.2.5.1".

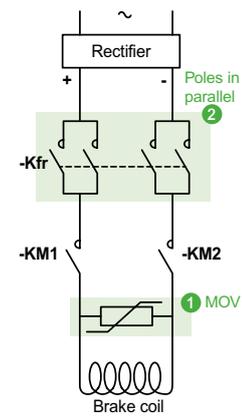
This may concern the motor and **safety brake circuits**.

Safety brake

Automatic control by contactor Kfr

The brake is controlled by an automatic control system acting on contactor 'Kfr', in normal operating conditions (motor start/stop) and during service or emergency maneuvers.

Control contacts on DC circuit



The TeSys K contactor range is recommended for Kfr

- Since the current never goes through zero, the breaking of DC current is difficult for the contactor, which must itself overcome the voltage across its contacts.
- The higher the voltage, the more difficult is the current flow breaking.
- Conversely, for a given brake power, the smaller the voltage the higher the current to be broken. High current damages the contactor's pads and reduces contactor lifetime.

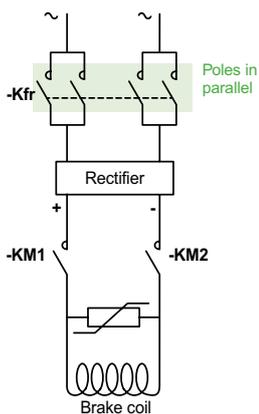
In order to design a reliable, robust brake control, we advise you to follow these steps:

- 1 Provide for a Varistor (MOV – Metal Oxide Varistor) or Transil to be used in parallel with the brake coil in order to limit overvoltages.
- 2 In the case of high current, divide the current between contact by combining poles in parallel with each pole in series.

Nota: Wire contacts in series to reduce the voltage across each of them. Use table 2, p. 13, to determine the minimum number of contacts in series to be used for the voltage/power pair of the brake coil to be powered.

These measures will extend the contact's lifetime.

Control contacts on AC circuit



The TeSys K and D contactor ranges are recommended for Kfr

- In table 3, p. 13, select contactor K or D, depending on the endurance wanted.
- The endurance of a contactor on an AC circuit depends on the current* broken by its contacts, irrespective of the voltage.
- It is possible to increase the contactor's endurance by wiring contacts in parallel in order to divide the current across them.

* In case of brake with overexcitation, contactors shall be sized regarding hold current.

A

B

C

D

E

Safety brake

Braking combined with motor control by motor contactors KM1, KM2

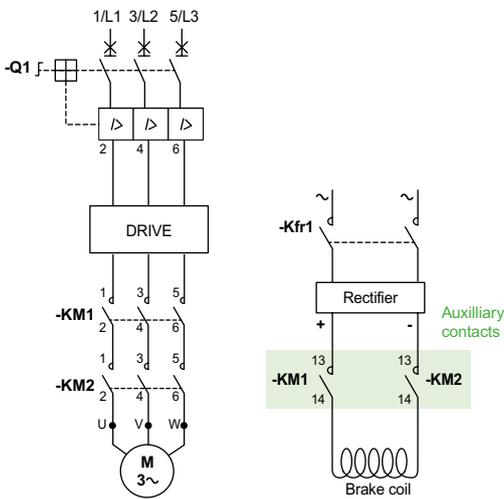
In order to ensure the release of the brake at motor start-up, it is common to wire a contact of each motor contactor in the brake coil power supply chain.

The contact used is:

- Either a power pole
- Or an auxiliary contact

The choice of one or the other should be made taking into account the current in the brake coil – see examples below.

Low-current brake coil (within the limits of table 1, p. 13)

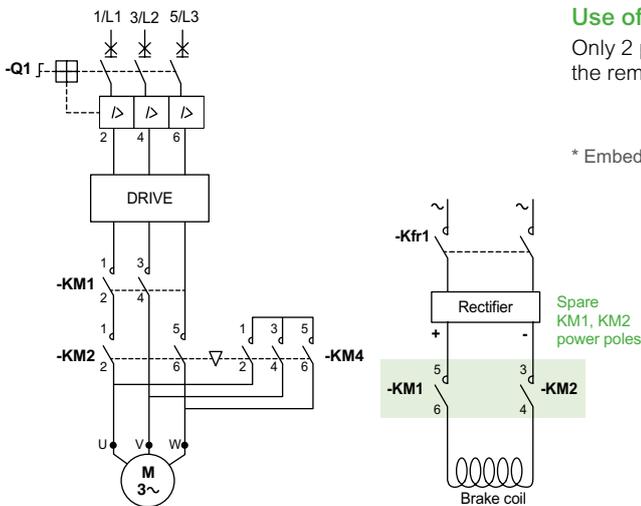


Use of motor contactor Auxiliary contacts*

Choice to be preferred, especially if KM1 and KM2 auxiliary contacts are not heavily loaded (e.g., if the current is mostly made and broken by brake contactor Kfr).

* Embedded auxiliary contacts, auxiliary contact blocks, see page 17.

High-current brake coil (beyond the limits of table 1, p. 13)



Use of an available pole of contactors KM1 and KM2

Only 2 poles of KM1, KM2 are used in a Motor 'Star Delta' circuit, the remaining pole can be used in the brake control circuit.

* Embedded auxiliary contacts, auxiliary contact blocks, see page 17.

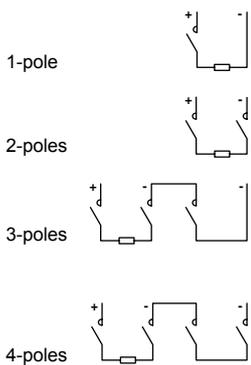
Safety brake

Use of TeSys D, K contactors as brake coil contactor (Kfr) – Selection criteria

Table 1:
DC brake control: TeSys D auxiliary contact performance according to broken current and voltage

Number of cycles						
	1 million		3 millions		10 millions	
Voltage (V)	Power (W)	Current (A)	Power (W)	Current (A)	Power (W)	Current (A)
24	96	4.0	48	2.0	14	0.6
48	76	1.6	38	0.8	12	0.3
125	76	0.6	38	0.3	12	0.1
250	76	0.3	32	0.1	-	-
440	44	0.1	-	-	-	-

Table 2:
DC brake control: TeSys K pole performance according to voltage, broken current and number of poles in series



Number of cycles		0.5 million				1 million			
Voltage (V)	Connected in series	Contactor ref.: LP1K06**		Contactor ref.: LP1K09**		Contactor ref.: LC1K06**, LC1P06**		Contactor ref.: LC1K09**, LC1P09**	
		P (W)	I (A)	P (W)	I (A)	P (W)	I (A)	P (W)	I (A)
24	1	41	1.69	46	1.92	30	1.25	34	1.43
	2	57	2.36	65	2.69	42	1.75	48	2.00
	3	74	3.11	85	3.54	55	2.3	63	2.62
	4	-	-	111	4.62	-	-	82	3.42
48	1	40	0.84	46	0.96	30	0.63	34	0.72
	2	57	1.20	65	1.36	43	0.9	49	1.03
	3	73	1.53	84	1.74	55	1.15	63	1.31
	4	-	-	109	2.27	-	-	82	1.71
75	1	35	0.47	40	0.53	30	0.4	34	0.46
	2	48	0.64	55	0.73	41	0.55	47	0.63
	3	61	0.82	70	0.93	52	0.7	60	0.80
	4	-	-	95	1.27	-	-	81	1.08
125	1	35	0.28	40	0.32	30	0.24	34	0.27
	2	48	0.41	58	0.47	41	0.35	50	0.40
	3	61	0.56	80	0.64	52	0.48	68	0.55
	4	-	-	97	0.77	-	-	83	0.66
220	1	36	0.17	41	0.19	28	0.13	33	0.15
	2	51	0.23	57	0.26	40	0.18	45	0.21
	3	67	0.30	76	0.35	53	0.24	60	0.27
	4	-	-	102	0.46	-	-	80	0.36

Table 3:
AC brake control: TeSys K and D pole performance according to broken current

Number of cycles				
Contactor cial. ref.	1 million	2 millions	5 millions	10 millions
	Current (A)			
LC1K06 or LP1K06	6.00	4.50	2.50	1.60
LC1K09 or LP1K09	9.00	6.70	3.90	2.60
LC1D09	-	9.00	4.80	3.20

A

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C

D

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Contactors

EN 81-20 §5.10.3.1 specific requirements

Contactor coordination: Type 1 required with the upstream circuit breaker

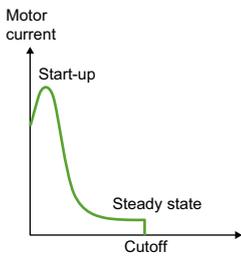
“The main contactors with their associated short-circuit protective devices shall have type "1" coordination in accordance with EN 60947-4-1:2010, 8.2.5.1”.

Type 1 coordination: Any short circuit downstream of the combined circuit breaker/ contactor shall present no risk for the operator and the installation. Restarting will require servicing for repair or replacement of the contactor.

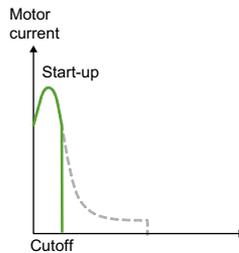
> The selection tables proposed in this guide take into account the type 1 coordination requirement.

Contactor class of use: AC-3 & AC-4

“Main contactors directly controlling motors shall, in addition, allow 10% of starting operations to be performed as inching/jogging, i.e. 90% AC-3 + 10% AC-4”.



A contactor selected in **Class AC-3** can only break the steady-state current. Breaking at start-up shall be an exceptional event.



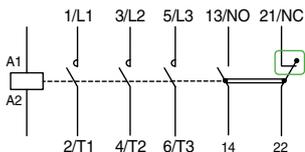
A contactor selected in **Class AC-4** can only break the starting current systematically.

> The selection tables proposed in this guide take into account the class of use requirement: 90% AC-3 + 10% AC-4.

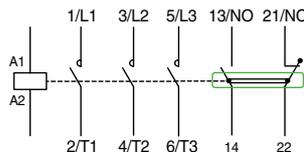
Contacts: Mirror and mechanically linked

- 1 • "These contactors shall have mirror contact(s) according to EN 60947-4-1:2010, Annex F [...]”.
- 2 • "For the main contactors, [...] contactor relays, relays [...], it is necessary [...] that
 - a. auxiliary contacts of main contactors are mechanically linked contact elements according to Annex L of EN 60947-5-1:2004;
 - b. contactor relays comply with Annex L of EN 60947-5-1:2004;
 - c. relays comply with EN 50205, in order to ensure that any make contact(s) and any break contact(s) cannot be in closed position simultaneously.”

Mirror contact: it is a NC contact identified by a dot. It is linked to the power contacts and can never be closed so long as a NO power contact is closed.



Mechanically linked contacts: a direct mechanical link associates the NO and NC auxiliary contacts. It prevents the simultaneous open state of the 2 contacts.

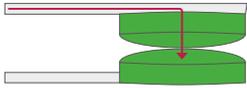


> The contactors, relays and auxiliary contact blocks of the TeSys D range include mirror contacts and mechanically linked contacts.

Contactors

Practical recommendations

To maintain satisfactory operation of the contacts



› Check the appropriateness of the contacts

The contacts and the closing pressure are sized according to the contactor rating. It is the arc produced at circuit breaking which "cleans" the contacts.

Our selection tables are established to prevent contactor oversizing relative to the need and thus allow cleaning.

› Pay attention to the contacts connected to a PLC input

The current supplied by the input (I switched) may be very low, a few milliamperes, at a very low voltage ≤ 24 V.

The match between the switching characteristics of the auxiliary contacts and the PLC current should be checked carefully.

The series connection of several contacts and large line lengths adversely affect this match.

Sealed contacts should be preferred if a cabled combination of contacts is required; otherwise, use intermediate relays of the TeSys CAK or CAD type.

› Make sure to keep the contactors away from dust, moisture and chemical substances

Contamination can be a cause of thermal overheating and an adversely affected lifetime. Combined with low currents, it can be a cause of non-conducting poles.

To prevent contamination of the contacts



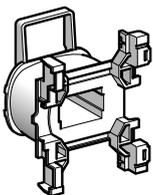
› Before assembly, make sure to store the contactors and relays in a clean place.

› Preferably choose assembly in an enclosure with a high degree of protection (IP55), equipped with a filter (to be replaced each year).

› Keep the contactors and relays away from the fan's air flow.

› Make sure that the enclosure is kept closed outside of technical inspections.

To maintain satisfactory operation of the contacts



› Make sure to maintain coil voltage within the specified tolerances in order to maintain the contact closing speed

Example: TeSys LC1D09P7 coil
Control limit voltages: 0.8... 1.1 U_c for 50 Hz and 60°C.

In practice:

- Limit the length of the line to limit the voltage drop.
- Make sure to maintain an acceptable ambient temperature:
A temperature not exceeding the maximum recommended value will keep the coil resistance at a value capable of ensuring satisfactory switching.

Example: Max. ambient temperature 60°C for TeSys LC1D.

Contactors

Practical recommendations

To reduce contactor noise



- The contactors with DC coil generate no hum.
- These contactors should be preferred when the machinery enclosure is mounted on a partition wall common with an apartment.

To identify relays belonging to safety chains



- **You have designed a safety chain incorporating standard TeSys D relays which all comply with the EN 60947-5-1:2004 and EN 50 205 standards.**

It is easy to identify them:

- LAD9ET1S, LADET3S or LADET4S red covers on contactors and relays



- LADN22S red auxiliary contact blocks



ADDITIONAL INFORMATION



Clearly visible safety chain makes your life easier.
Ref.: 998-1243702_GMA-GB

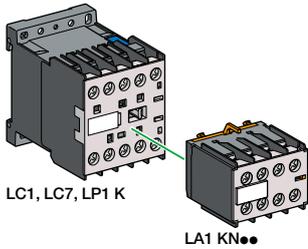


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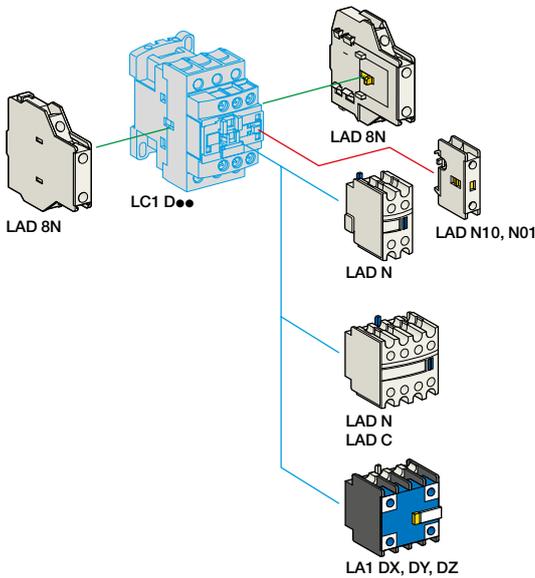
Contactors

TeSys D, K, contactors - auxiliary contacts

The TeSys D, K ranges of contactors offer numerous possibilities for adding auxiliary contacts, allowing monitoring of the state of contactors, to be incorporated, for example, in a safety chain.



Combination of auxiliary contact blocks with a TeSys K contactor.



Combination of auxiliary contact blocks with a TeSys D contactor.



LADN22S

TeSys D contact block, for a chain of safety contacts.

Auxiliary contact blocks for TeSys K and D contactors

Clip-on mounting	Number of contacts per block	Composition		Reference with screw clamp terminals ⁽¹⁾	
		Normally open	Normally closed	TeSys D	TeSys K
Front	1	1	-	LADN10	-
		-	1	LADN01	-
	2	1	1	LADN11	LA1KN11
		2	-	LADN20	LA1KN20
	4	-	2	LADN02	LA1KN02
		2	2	LADN22	LA1KN22 ⁽²⁾
		2	2	LADN22S ⁽³⁾	-
		1	3	LADN13	LA1KN13 ⁽²⁾
		4	-	LADN40	LA1KN40 ⁽²⁾
		-	4	LADN04	LA1KN04 ⁽²⁾
Side	2	3	1	LADN31	LA1KN31 ⁽²⁾
		1	1	LAD8N11	-
	2	-	LAD8N20	-	
	-	2	LAD8N02	-	

- (1) See control and protection component catalog for more connector type references.
- (2) Not available for low-consumption contactors.
- (3) With red cover for safety chains.

Sealed auxiliary contact blocks for TeSys D contactors

Clip-on mounting	Number of contacts per block	Composition				Ref. with screw clamp terminal TeSys D	
		Protected Normally Closed	Protected Normally Open	Normally open	Normally closed		
Front	2	-	2	-	-	LA1DX20	
		1	1	-	-	LA1DX11	
		2	-	-	-	LA1DX02	
	4	-	2	2	-	-	LA1DY20
		-	2	-	2	-	LA1DZ40
		-	2	-	1	1	LA1DZ31

- (1) Cable shield continuity link.

Characteristics of auxiliary contacts

	U min V	I min mA	Ue V	I max (Ie)	F Hz
LA1DY	3	0.3	24	50 mA	-
LA1DX LA1DY LA1DZ (protected)	3	0.3	50	500 mA	-
LA1DZ (not protected) LADN LADC LAD8 LA1KN...	17	5	690	10 A	25...400
TeSys D aux. contacts	17	5	690	10 A	25...400

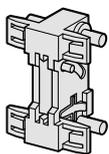
Contactors

TeSys D contactors - kits of interlocking accessories

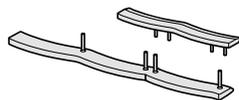
The table below summarize interlocking accessories and mounting kits for Start/Delta starters and reversers.

Contactor	Mechanically interlockable		Electrically interlockable		Electrical and mechanical interlock	
	With:	Using: (AC)	With:	Using:	With:	Using:
LC1D09	D09, D12, D18	LAD9V2	D09, D12, D18	LAD9V1	-	-
LC1D12	D09, D12, D18	LAD9V2	D09, D12, D18	LAD9V1	-	-
LC1D18	D09, D12, D18	LAD9V2	D09, D12, D18	LAD9V1	-	-
LC1D25	D25, D32, D38	LAD9V2	D25, D32, D38	LAD9V1	-	-
LC1D32	D25, D32, D38	LAD9V2	D25, D32, D38	LAD9V1	-	-
LC1D38	D25, D32, D38	LAD9V2	D25, D32, D38	LAD9V1	-	-
LC1D40A	D40A, D50A, D65A	LAD4CM	All	(1)	-	-
LC1D50A	D40A, D50A, D65A	LAD4CM	All	(1)	-	-
LC1D65A	D40A, D50A, D65A	LAD4CM	All	(1)	-	-
LC1D80A	D80, D95	LA9D50978 (~) / LA9D80978 (DC)	All	(1)	D80, D95	LA9D4002(~) / LAD8002 (DC)
LC1D95	D80, D95	LA9D50978	All	(1)	D80, D95	LA9D4002(~) / LAD8002 (DC)
LC1D115	-	-	All	(1)	D115, D150	LA9D11502
LC1D150	-	-	All	(1)	D115, D150	LA9D11502

Contactor	Star/Delta Mounting kit (2)		Reversing Mounting kit	
	With:	Using:	With:	Using:
LC1D09	D09, D12	LAD91217	D09	LAD9R1V (3) / LAD9R1 (4)
LC1D12	D09, D12w	LAD91217	D12	LAD9R1V (3) / LAD9R1 (4)
LC1D18	D18, D25, D32, D38	LAD93217	D18	LAD9R1V (3) / LAD9R1 (4)
LC1D25	D18, D25, D32, D38	LAD93217	D25	LAD9R1V (3) / LAD9R1 (4)
LC1D32	D18, D25, D32, D38	LAD93217	D32	LAD9R1V (3) / LAD9R1 (4)
LC1D38	D18, D25, D32, D38	LAD93217	D38	LAD9R1V (3) / LAD9R1 (4)
LC1D40A	D40A, D50A, D65A	LAD9SD3	D40A	LAD9R3 (5)
LC1D50A	D40A, D50A, D65A	LAD9SD3	D50A	LAD9R3 (5)
LC1D65A	-	-	D65A	LAD9R3 (5)
LC1D80A	D80, D95	LA9D8017	-	-
LC1D95	D80, D95	LA9D8017	-	-



LAD9V2
Mechanical interlock



LAD9V1
Electrical interlock



LAD91217
Mounting kit

(1) Customer cabling

(2) Mounting kit comprising:

- 1 time-delay contact block LAD S2 (D09...D80) (3)
- Power-circuit connections (D09...D80)
- Hardware required for fixing the contactors on the mounting plate (LC1D80A)
- 1 mechanical interlock for LAD91217, LAD93217, LAD9SD3
- 1 electrical interlock for LAD91217, LAD93217
- 1 specific part in LAD93217 to associate contactors of different sizes

(3) Mounting kit comprising:

- A mechanical interlock LAD 9V2 with electrical interlocking LAD 9V1
- A set of power connections LAD 9V5 (parallel) and LAD 9V6 (reversing)

(4) Mounting kit comprising:

- A mechanical interlock LAD 9V2 without electrical interlocking
- A set of power connections LAD 9V5 (parallel) and LAD 9V6 (reversing)

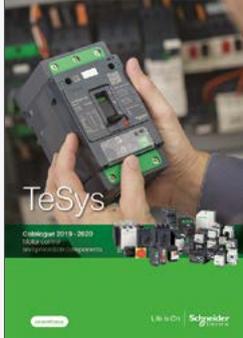
(5) Mounting Kit comprising:

- A mechanical interlock LAD 4CM
- A set of power connections LA9 D65A69.

Contactors

Documentation

TeSys catalog

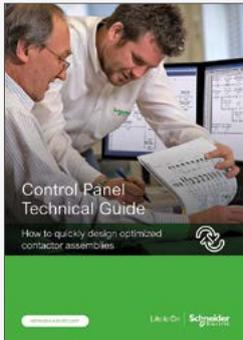


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Ref.: MKTED210011EN

Contactor assembly Technical Guide



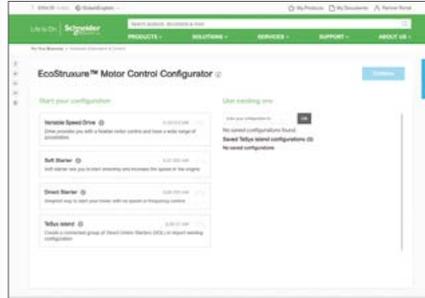
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This document describes a large variety of TeSys K, D and F contactor assemblies: Motors reversers, Star/Delta starters, High/Low speed motor starters, changeovers. All the cabling accessories and mounting kits are describes in details with photos.

Ref.: CPTG011_EN

Online EcoStructure Motor Control configurator



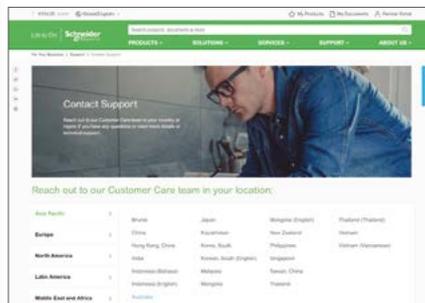
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TeSys portal



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Customer care center



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Presentation videos



Scan or click on QR code



TeSys GV2 motor circuit breakers Video



TeSys D contactors Video



TeSys K contactors Video

A

B

C

D

E

Drives

Altivar Lift drives

Altivar Lift drives for synchronous and asynchronous motors (with or without encoder)



3-phase supply

- 200/240 V - 27 A to 66 A
- 380/480 V - 10 A to 48 A

1-phase supply

- 200/240 V - 17 & 27

All-round high performance

- Elevator ramp allows simple adjustment for optimum comfort
- Passenger comfort at starting regardless of the elevator type and age (load measurement and rollback management)
- Wide choice of encoders for all types of motor
- Option to perform static angle test for synchronous motors on existing elevators.

Integrated safety

- Power Removal® function certified for use with a single motor contactor.

Hardware specially designed to

- Handle the specific constraints of elevator applications (repetitive starting/stopping, equipment power always on, control at 0 Hz, etc.)
- Comply with elevator standards (EN12015 and EN2016 without external filter)
- Prevent vibration during operation (optimized current measurements).

Plug & Play installation

- Dedicated elevator menu for installers
- Elevator-specific units.

Customized setups

- With the use of PowerSuite software and Multi-Loader
- Configurations can be duplicated in just a few seconds using Single Loader.

Remote graphic display terminal

- To configure and communicate with the drive, even when the enclosure is closed.



- Carry out maintenance without interrupting operation
- 6 languages available as standard.

ADDITIONAL INFORMATION



Selection guide: variable speed drives for synchronous and asynchronous motors (with or without encoder).
Ref.: DIA2ED1101201EN



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Selection guide: variable speed drives for synchronous and asynchronous motors (with or without encoder).



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Common components

Product range names



Enclosures and accessories Pragma

Pragma Evolution is a comprehensive range of modular enclosures with 13/18/24 modules. Surface-mounted or flush-mounted.

- 13 to 18 modules: 63 to 125 A.
- 24 modules: 125 to 160 A.

PREFABRICATED ENCLOSURES for elevators, on request

Equipped enclosures, cabled and ready to install: Please consult the local Schneider Electric branch office for the production of enclosure batches in line with your specifications.



Residual current protection Acti9 iID B-SI RCCB & Acti9 RCBO

Residual current protection:

- Type A, AC and type B
- 30 or 300 mA sensitivity (SI (Super Immunized) low sensibility)
- RCCB & RCBO residual current circuit breakers up to 63 A.



Ranges of uninterruptible power supplies
Multiple voltage, multiple power ratings
UPS

A



Circuit breakers Acti9 iC60 & NG125

Range of modular circuit breakers, class 2 isolation:

- 1 to 125 A and breaking capacity of up to 100 kA
- Up to 440 VAC, insulation voltage: 690 V
- Numerous accessories.



Modular sockets, impulse relays and other modular components Acti9

A range of components to be installed on DIN rail to form electrical distribution switchboards.

- Functions that can be implemented:
- Control and signaling
 - Power sockets.

B



Surge arresters Acti9 iPRF1, iPRD

Range of surge arresters, types 1, 2 and 3. With fixed or draw-out cartridge.

[Technical focus: pages 24-25](#)



Power/Energy Monitoring PowerTag, IEM, Power Meter

- Energy sensor, small in size, large in performance
- Real time data transmission to your mobile device
- Easy to install.

C

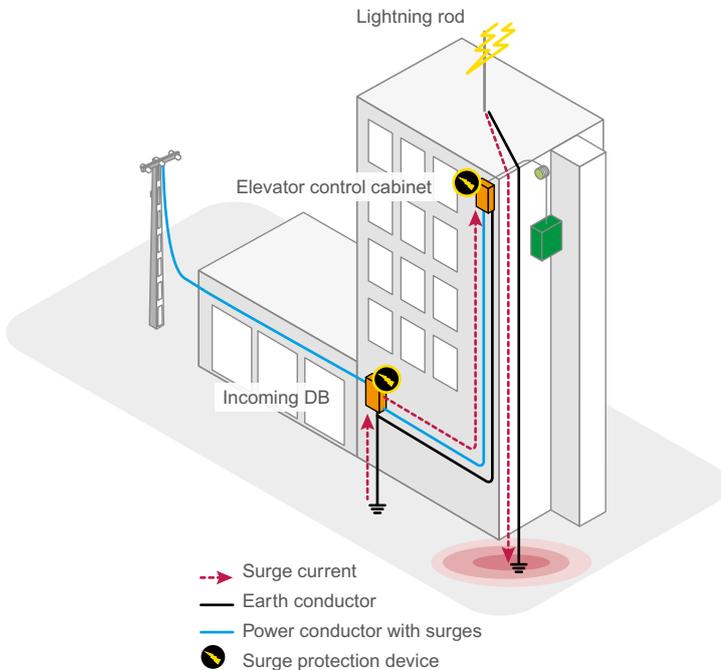
D

E

Surge arresters

Technical focus

Well chosen and installed, a surge arrester provides real protection for electronic equipment against overvoltages conducted by the electrical network and earthing conductor.



A lightning protection system protects buildings from direct strikes (as per IEC 62305). The lightning current is directed towards the ground but at the same time generates overvoltage in the electrical installation.

Overvoltages can also be generated through the incoming power and telephone lines.

The basic precautions to prevent the disturbing energy from reaching the elevator equipment are:

- Equipotential bonding of the installation;
- Surge Protection Devices (as per IEC 60364-4-44 & IEC 60364-5-534).

Since in most countries elevator systems are subject to occupational health and safety regulations, we strongly recommend to install Surge Protection Devices in these systems.

Disconnecter + Surge Protection Device (SPD) - to be installed in elevator distribution panel

UNKNOWN COMPOSITION OF BUILDING
INCOMING PANEL



Disconnecter:
NG125N C80 A
circuit breaker

'Type 1+2' SPD:
in Acti 9 iPRF1 range

- Iimp 12.5 kA
- 3P for TN-C earthing systems
- 3P+N for TNS, TT

EXISTING SURGE PROTECTION DEVICE
IN THE BUILDING INCOMING PANEL



Disconnecter:
iC60H - 50 A
circuit breaker or
63 A gG fuse

'Type 2' SPD:
in Acti 9 iPRD40r range

- I_{max} 40 kA
- 1P or 3P for TN-C earthing systems
- 1P+N or 3P+N for TNS, TT
- End-of-life signalling contact



iPRF1 2.5 3P
A9L16633



iPRF1 12.5 3P+N
A9L16634



iPRD40r 1P
A9L40101



iPRD40r 3P
A9L40301



iPRD40r 1P+N
A9L40501



iPRD40r 3P+N
A9L40601

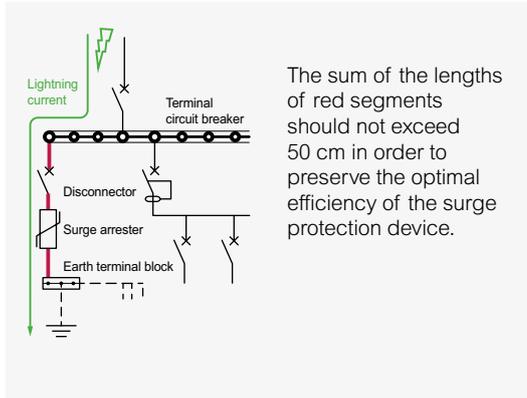
The proposed solutions contribute to protect the equipment in all possible cases when the presumed short-circuit current (I_{sc}) of the power supply enclosure is ≤ 15 kA.

Surge arresters

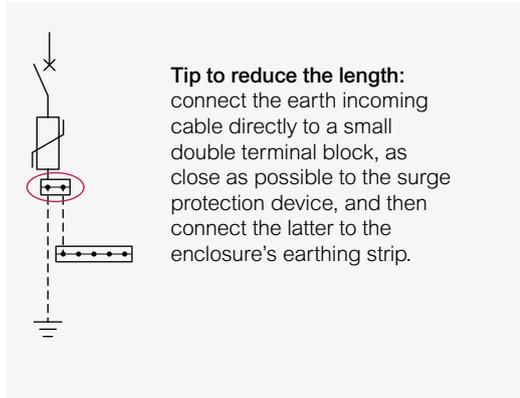
Technical focus

SPDs (type 1+2, type 2) cabling rules

The circuit of the surge protection device is cabled in parallel with those of the loads that it protects. In the presence of an overvoltage its impedance falls considerably, to facilitate voltage discharge.



The sum of the lengths of red segments should not exceed 50 cm in order to preserve the optimal efficiency of the surge protection device.



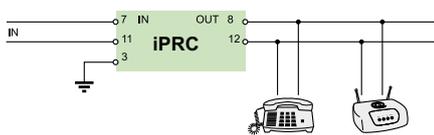
Tip to reduce the length: connect the earth incoming cable directly to a small double terminal block, as close as possible to the surge protection device, and then connect the latter to the enclosure's earthing strip.

A

Surge protection devices for 'communication network'

Protection of PLC inputs by iPRC surge protection device

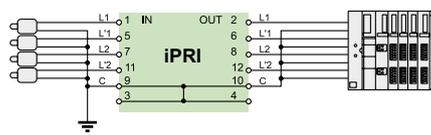
Telephone lines can conduct lightning surge. The iPRC surge protection device is compatible with ADSL transmission.



iPRC
A9L16337

Protection of PLC inputs by iPRI 4-line surge protection device

This is especially recommended when digital sensors are connected to long lines (several dozen meters).



iPRI
A9L16339

B

C

D

ADDITIONAL INFORMATION



How to prevent machine malfunctioning and electronic damage due to voltage surge.
Ref.: CPTG002_EN



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Surge arresters selection guide.
Ref.: A9DP96EN



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Acti 9 iID B-SI type RCCB: 'B', for power networks with high frequency AC and pure DC earth leakage currents generated by UPS, drives. 'SI', Super-Immune against fast surges due to lightnings.
Ref.: 998-20348267_GMA-US



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Protection of elevator power network against surges.
Ref.: CA9SS078E



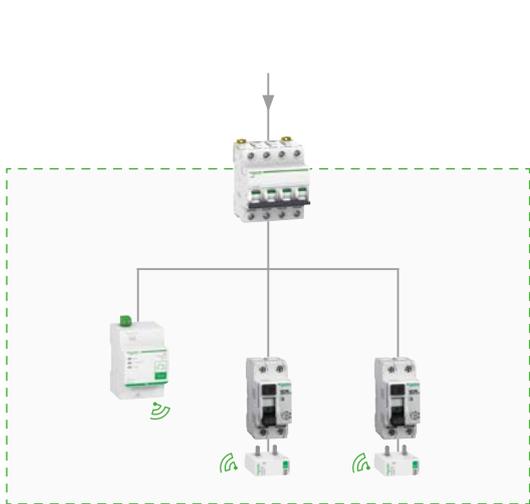
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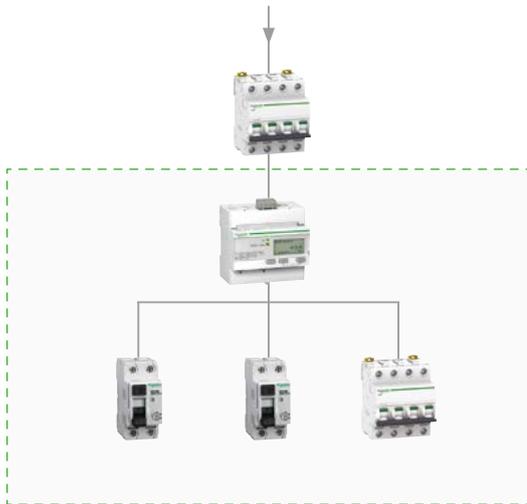
Energy/Power meters

Technical focus

Energy and power meters provide the information needed to meet the ever-increasing energy efficiency requirements in buildings and to provide unparalleled reliability through advanced analysis.



Eg. Measure per circuit with Power Tag



Eg: Measure at the machine level

Energy & Power meters



PowerTag



iEM3000

Energy & Power & Power Quality meters



PM3200



PM5000

Energy & Power Meters enable the leveraging of Elevators for Energy Efficiency action plans

- Measure & Compare Energy Consumption/ Production of elevator
- Basic Alarming
- Assess Elevator Energy Class (VDI4707/ISO 25745)
- Provide data for environmental certification programs.



Power & Multifunction Meters improve faults diagnostics and predictive maintenance analytics performance for Critical Sites:

- Measure & Compare Energy Consumption/ Production of elevators
- Assess Energy Class & provide data for environmental certification programs.
- Monitor real time data of Power Quality (U, I, Frequency, THD, Phase balance,...) for alarming.
- Communicate monitored data for predictive maintenance analytics.

ADDITIONAL INFORMATION



PowerTag wireless energy sensors Website



Scan or click on QR code



Catalog of Energy management, revenue metering and power quality monitoring solutions
Ref. PLSED309005EN



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Uninterruptible Power Supplies (UPS)

Technical focus

In case of power failure, Uninterruptible Power Supply (UPS) provides the necessary power to avoid entrapment & discomfort of passengers.

UPS can also protect the system against other power disturbances that could affect the elevator life-time & reliability.

From the instability of the power grid to the dysfunction of diverse loads in the building, the sources of grid perturbation within a building are multiple. They can take several forms, but all of them will increase directly or indirectly the risk of safety hazards for an elevator.

- Power Outage
- Voltage variation
- Frequency Variation
- Harmonics Perturbance.



With their direct and immediate effect on power availability and quality, UPS are the go to answer when safety and continuity of operations are paramount.

UPS come with different form, size and functions and provide key advantages over other technical solutions:

- Compactness:**
 Being 100 % electronic based, UPS are usually more compact than other electromechanical solutions. Their size can be further reduced with the use of Li-Ion batteries.
- High Comfort:**
 The Switch-over from grid to battery is swift and imperceptible by the passenger. Additionally this is completely silent.
- Safety & Compliance:**
 UPS are subject to IEC/UL standards, covering strict EMC & Fire resistance requirements. Be sure to check for their compliance markings.
- Extended Protection:**
 Some UPS provides protection against power quality issues, and can increase the reliability & lifetime of key electrical components of your elevator.

A

B

C

D

E

Uninterruptible Power Supplies (UPS)

Technical focus

Depending on the level of protection required and the capacity needed, we recommend the 3 following types of UPS.



Off-Line UPS:

- Power Rating: Typically 400VA ~ 1 kVA - 1 phase
- Protection against Power Outage
- Typical loads: Light, Brakes & Control.

On line UPS:

- Typically 1 kVA ~ 60 kVA ~ 1 phase or 3 phase
- Zero transfer time
- Full voltage/frequency disturbance protection
- Full elevator emergency supply.

Line interactive UPS:

- Power Rating: Typically 500VA ~ 3 kVA – 1 phase
- Protection against : Power Outage & potentially Voltage Variation
- Typical loads: Light, Controls, Drives & Brakes.

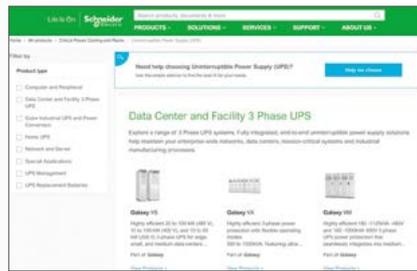
ADDITIONAL INFORMATION



Brochure Schneider Electric - Easy UPS
 Ref.: 998-20488370_GMA-US_B



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UPS ranges Website

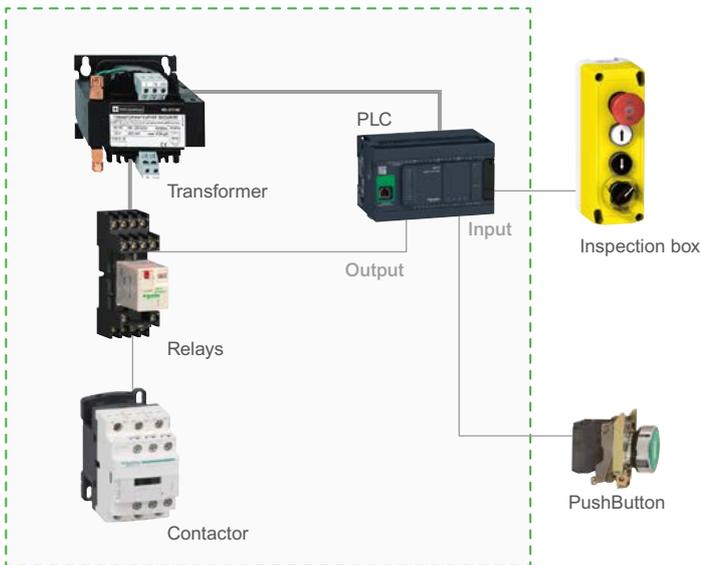


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Control components

Product ranges overview



Transformers - DC power supplies

A wide range of single-phase and three-phase regulated switch mode power supplies. A choice of safety transformers.

Phaseo



PLCs

From logic to motion control, the benchmark-performing Modicon range provides flexibility and scalability to suit your needs.

Modicon M241; M221; M251



Relays and contactors

- Zelio plug-in relays
- TeSys D relays and contactors. Mountings for reversing and star-delta starters.

Zelio & TeSys D



Buttons, indicator lamps

- **Harmony XB4:** buttons, metal indicator lamps, dia. 22 mm
- **Harmony XB5:** buttons, plastic indicator lamps, dia. 22 mm.

Harmony XB



Inspection boxes

Range of inspection boxes fitted or to be fitted for elevators.

In accordance with standards:

IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60947-5-4, IEC/EN 60947-5-5, EN 418 ("sudden locking" emergency stop switches) and EN 81 (elevator standard).

Harmony XALF

ADDITIONAL INFORMATION



Clearly visible safety chain makes your life easier.

Ref.: DIA5ED2160501EN



Scan or click on QR code

Harmony XaLF inspection boxes

Technical focus

Designed for elevator maintenance applications.



Harmony XaLF Inspection boxes*



1

Hoistway boxes

XALFKT64451



2

Top of car boxes

XALFK2001E



3

Pit switch boxes

XALFK400,
XALFP7005E

These boxes make it possible to control movement of the elevator. Used in conjunction with the other operating components, they facilitate inspection and repair works.

They are installed outside the car.

- **Safety:** Inspection stations prevent any risk of uncontrolled movement of the elevator while such work is being carried out.
- **Supplied complete,** these elevator inspection stations are equipped with Ø 22 control and signaling units from the Harmony® XB5 and XB7 ranges; they are catalog listed and are certified.

XaLF products can be customized according to customer needs, depending on quantities.

Contact Schneider Electric for more information

* Current product range in compliance with the EN81-1 standard. Currently being brought into line with the new EN81-20 standard.

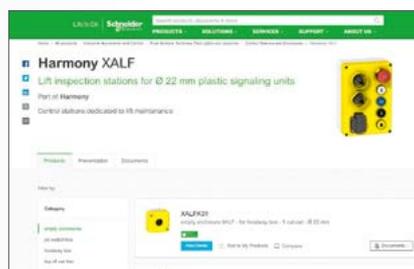
ADDITIONAL INFORMATION



Lift inspection stations
Harmony® XAL F Catalog
Ref.: DIA4ED20703EN



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Lift inspection stations
Harmony XALF
Web page

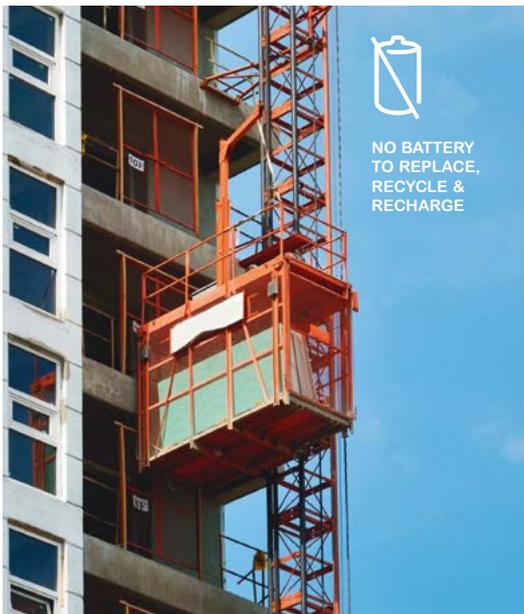


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Harmony Hub wireless pushbutton kits

Technical focus

- Reduced installation time and cabling cost.
- Can be used in many applications, including construction site hoists, explosive atmospheres, and dust and gas environments.



Application example: construction site hoist



- Transmitters (ZB4R metal, ZB5R plastic): convert into electrical energy the mechanical energy produced when the pushbutton is pressed.
- A radio-encoded message is sent with a unique ID code to one or more receivers.
- Receivers: their outputs are actuated by up to 32 transmitters. 4 PNP outputs (Monostable), 2 relay outputs (Monostable/Bistable), 2 relay outputs (Monostable/Bistable/Stop-Start), depending on model.
- Relay-antennas: increase the transmission range, to be used in the case of long distances or obstacles.
- Wireless to Modbus/TCP gateway (ZBRN2 - included com. hub) (ZBRN1 + ZBRCZTH com. module): converts signals received from up to 60 transmitters into digital communication with a PLC or PC.
- Free worldwide band: 2.4 GHz radio-encoded transmission.
- Available in kits (XB.R...) and separate elements (ZB.R...).

ADDITIONAL INFORMATION



Wireless and batteryless pushbuttons
Ref.: DIA5ED21214EN



Scan or click on QR code



Sensors - Encoders

Product range overview

Telemecanique Sensors has accompanied you for more than 50 years in all your detection, position, pressure and safety functions with a comprehensive range of switches in compliance with EN81-20, and specialized electronic sensors.



Overrun, safety function, limit switch with manual reset
OsiSense XCNR25



Shaft space, Pit station, Parachute information, Cable slack, limit switches for position detection,
OsiSense XCNR25 or XCKS5 (plastic, double insulation - EN 50041)
Reference example: XCKN2549P20
1 NO contact + 1 NC contact
Thermoplastic roller lever of diameter 50 mm.



For hydraulic drive machinery:

- Overpressure, with 2 thresholds, OsiSense XMLD
- Pressure monitoring, analog signal, OsiSense XMLP



Car positioning, depending on the structure design and the elevator manufacturer's requirements:

- Optical detection of flag by fork, OsiSense XUVH
- Electromechanical detection by limit switch, OsiSense XCKN2549 or XCKS549
- Steel flag detection on each floor by inductive sensors, OsiSense XS Cubic range, SIL2 certified

(safety can be ensured with only one sensor when used with controller SIL2, TUV certified).



Real-time data and alarms on mobile devices

- Cloud connected sensor, connects unreachable assets to the Cloud XIOT.

+ LIMITED NOISE OF LIMIT SWITCHES

- No audible "click" during maneuver
- Reduced noise when operating, thanks to a rubber layer on the roller.



EN81-20 compliance

§5.11.2.2.5: "In the case of multiple breaks, the distance after separation between the contacts shall be at least 2 mm."
For all limit switches, the "5" digit in the reference refers to the distance after separation of the contacts. It is either the first digit for the XCKS range (e.g.: XCKS5) or the second digit for the other ranges (e.g.: XCKN25).
§ 5.11.2.2.2: "The operation of a safety contact shall be by positive separation of the circuit-breaking devices. This separation shall occur even if the contacts have welded together."
All our limit switches ensure this positivity thanks to an undeformable link.

Sensors - Encoders

Product range overview

OsiSense products can be customized according to customer needs, depending on quantities.

Contact Schneider Electric for more information



Car position and/or motor speed detection

Rotary encoder, OsiSense XCC.



Automatic door management

Detection with photoelectric sensor, OsiSense XU range

Reference example: XUK9ARCNL2

- Photoelectric sensor;
- Relay output 1O+1C;
- 24-240 V AC/DC supply;
- 5 m nominal detection with XUZC50 reflector;
- Prewired with 2 m cable.



Final limit detection, maintenance access position

Safety switches,

- Preventa XCSA metal body
- Preventa XCSPA plastic body.



Automatic door management

Door position monitoring with non-contact safety interlock switches,

Preventa XCSDM

Reference example: XCSDMR5902

- Cylindrical magnetic switch;
- Dia. 30 mm;
- Output 1O+1C;
- Pre-wired with 2 m cable.



Access control with RFID tag

Easily integrated panel mounting smart antenna

- Compact RFID sensor XG.

ADDITIONAL INFORMATION



Sensor Solutions for Escalator and Elevator Applications guide



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Sensors & RFID system Web page



Scan or click on QR code



Elevators and escalators innovative solutions



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Spacial & ClimaSys enclosures

Technical focus

Spacial range: up to IP66



- Wide choice of dimensions, to adapt easily to the diversity of electrical configurations
- IP55 to IP66, withstand dusty atmospheres
- Certified UL, BV, DNV, LR, GL, for export markets
- Choice of locks (S3D)
- Customizable.

A



Spacial SBM

Simple, ergonomic boxes, modular dimensions.



Spacial S3D

Enclosures resistant to aggressive environments, wide choice of sizes and accessories.

B



ClimaSys CV, CC

Fans, filters

Thermostat to maintain the correct humidity and temperature balance for the protection of sensitive electronic equipment.



FlexiCable - Elevator solution

Up to IP55

Fire resistant 650°C

Short-circuit validated 250 A, 25 kA

C

D

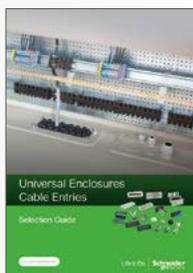
ADDITIONAL INFORMATION



Universal Enclosures catalogue
Ref.: UEMKCAT001EN



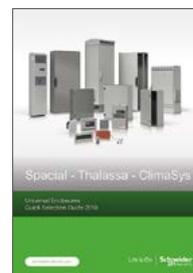
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Selection Guide: How to choose the right cable entry for your enclosure.
Ref.: UEMKG005EN



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Universal Enclosures Quick Selection Guide 2018
Ref.: UE18MK06EN



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E



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04/2020
CPTG009_EN

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