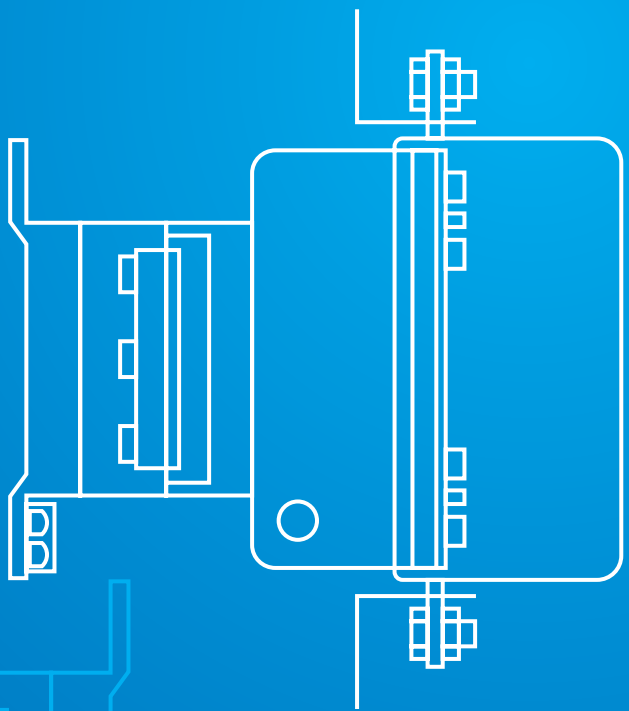
CONTACTORS

CONTACTORS



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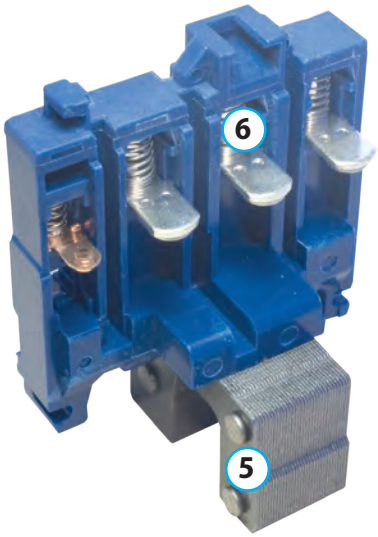

- BASE 1
- STATIC MAGNETIC CORE 2
- COIL 3
- REVERSE SPRING 4
- MOVABLE MAGNETIC CORE 5
- MOVABLE CONTACTS 6
- LID 7
- STATIC CONTACTS 8
- AUXILIARY CONTACT 9
- SCREWS 10
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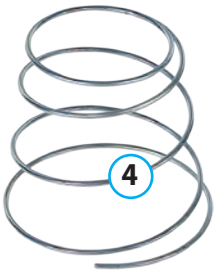
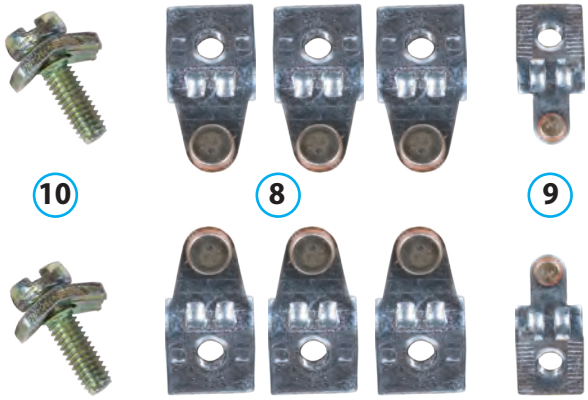
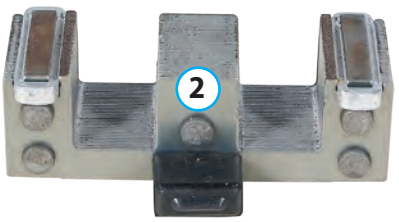






Documents corresponding to the product:
Standard EN 60947-1; EN 60 947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no. 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC".

Documents corresponding to the product:
Standard EN 60947-1; EN 60 947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no. 73/23 EEC" and "Electromagnetic Compatibility Directives (EMC) no. 89/336 EEC".

Low voltage contactors LT1-D/K

5 YEAR WARRANTY *for industrial usage, 3 years warranty

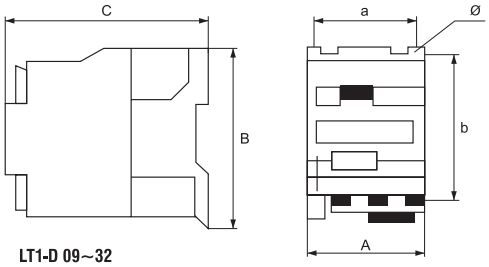
LT 1 D contactors are alternating current contactors for control of circuits and consumers operating in class AC3. It is suitable for consumers with rated current up to 95A. The contactors are offered in a type with 1 NO contact for operating circuit making and the models over 40A also have 1NC operating contactor.

Functions:
- switching on/off heavy-loaded electrical circuits at controlling signal to the coil
- making of control systems
- used as an operating element in process control panels
- remarkable with high reliability of current characteristics
- reliable separation of power contactors
- secured cover of the movable part of the contactor

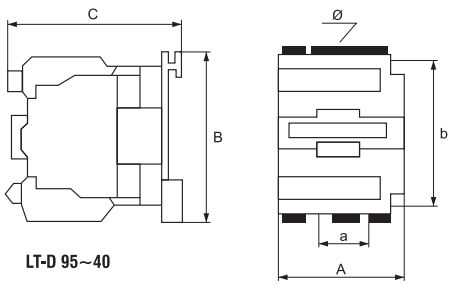
Technical data:
- Operation class: utilization category AC-3
- Rated operating voltage of power contactors: up to 690V; 50/60Hz
- Composition of the power contact surfaces: unalloyed copper with coating 80% AgSnO
- Surge voltage wear resistance: >8000V
- Rated voltage of the coil: from 12 to 400V AC
- Coil material: pure copper type QA-1
- Magnetic core material: alloy steel type 360
- Moveable part material: Bakelite
- Limits of the controlling coil voltage: operating range of coil
- Joining terminal: screw terminal
- Connecting:
  - flexible conductors with or without cable terminal
  - rigid conductors
- Electrical wear resistance (number of cycles):≥1000000
- Mechanical wear resistance (number of cycles):≥10000000
- Number of cycles per hour: 1200 UP TO 32A; 600 for 40-95A
- Pole leaking power: up to 13W

Mounting:
- on DIN-rail
- with bolts to the surface
- mounting position: vertical gradient – maximum ± 5°
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m

Type	Overall dimensions (mm)					
	a	b	Ø	A	B	C
LT1-HK 06~12/LT-1K	34/35	45	4.5	45	50	50
LT-D 09~12	34/35	50/60	4.5	47	70	82
LT1 D18	34/35	50/60	4.5	47	70	87
LT1 D25	40	48	4.5	57	80	95
LT1 D32	40	48	4.5	57	80	100
LT-D 40~65	40	100/110	6.5	77	126	116
LT-D 80~95	40	100/110	6.5	87	126	127



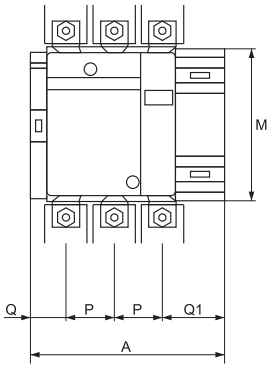
LT1-D 09~32
LT1 - K

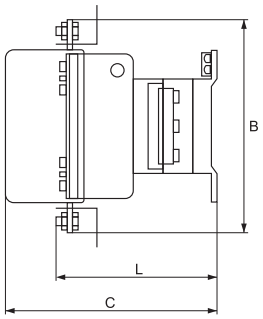


LT-D 95~40

Type number	Rated capacity (kW)					Power consumption of coil (VA)		Rated current in AC-3 440V to up	Tight-ening moment (N.m)	Section of the power supply conductor	Packing/ Box (pcs)	Catalogue number according to the coil voltage (V)						
	220V 230V	380V 400V	415V	440V	660V 690V	closed inrush	open hold					230V	400V	12V	24V	36V	48V	110V
LT 1 - K 0610 1NO	1.5	2.2	2.2	2.2	3	7	60	6A	1.7	0.75-2.5	1 / 100	**23061E**	**23062E**	**23063E**	**23064E**	**23065E**	**23066E**	**23067E**
LT 1 - K 0910 1NO	2.2	3.7	3.7	3.7	4	7	60	9A	1.7	0.75-2.5	1 / 100	**23091E**	**23092E**	**23093E**	**23094E**	**23095E**	**23096E**	**23097E**
LT 1 - K 1210 1NO	3	4	4	4	5	7	60	12A	1.7	0.75-2.5	1 / 100	**23121E**	**23122E**	**23123E**	**23124E**	**23125E**	**23126E**	**23127E**
LT1 - D0910 1NO	2.2	4	4	4	5.5	7	60	9A	1.7	1-4	1 / 50	**23091**	**23092**	**23093**	**23094**	**23095**	**23096**	**23097**
LT1 - D0901 1NC	2.2	4	4	4	5.5	7	60	9A	1.7	1-4	1 / 50	**23273**	**23270**	**23271**	**23272**	**23277**	**23278**	**23279**
LT1 - D1210 1NO	3	5.5	5.5	5.5	7.5	7	60	12A	1.7	1-4	1 / 50	**23121**	**23122**	**23123**	**23124**	**23125**	**23126**	**23127**
LT1 - D1201 1NC	3	5.5	5.5	5.5	7.5	7	60	12A	1.7	1-4	1 / 50	**23274**	**23280**	**23281**	**23282**	**23283**	**23284**	**23285**
LT1 - D1810 1NO	4	7.5	9	9	10	7	60	18A	1.7	1-4	1 / 50	**23181**	**23182**	**23183**	**23184**	**23185**	**23186**	**23187**
LT1 - D1801 1NC	4	7.5	9	9	10	7	60	18A	1.7	1-4	1 / 50	**23275**	**23286**	**23287**	**23288**	**23289**	**23290**	**23291**
LT1 - D2510 1NO	5.5	11	11	11	15	7.5	90	25A	2.5	2.5-10	1 / 50	**23251**	**23252**	**23253**	**23254**	**23255**	**23256**	**23257**
LT1 - D2501 1NC	5.5	11	11	11	15	7.5	90	25A	2.5	2.5-10	1 / 50	**23276**	**23292**	**23293**	**23294**	**23295**	**23296**	**23297**
LT1 - D3210 1NO	7.5	15	15	15	18.5	7.5	90	32A	2.5	2.5-10	1 / 50	**23321**	**23322**	**23323**	**23324**	**23325**	**23326**	**23327**
LT1 - D4011 1NO+1NC	11	18.5	22	22	30	20	200	40A	5	2.5-16	1 / 20	**23401**	**23402**	**23403**	**23404**	**23405**	**23406**	**23407**
LT1 - D5011 1NO+1NC	15	22	25	25	33	20	200	50A	5	6-25	1 / 20	**23501**	**23502**	**23503**	**23504**	**23505**	**23506**	**23507**
LT1 - D6511 1NO+1NC	18.5	30	37	37	37	20	200	65A	5	6-25	1 / 20	**23651**	**23652**	**23653**	**23654**	**23655**	**23656**	**23657**
LT1 - D8011 1NO+1NC	22	37	45	45	45	20	200	80A	9	10-50	1 / 15	**23801**	**23802**	**23803**	**23804**	**23805**	**23806**	**23807**
LT1 - D9511 1NO+1NC	25	45	45	45	45	20	200	95A	9	10-50	1 / 15	**23951**	**23952**	**23953**	**23954**	**23955**	**23956**	**23957**

Documents corresponding to the product:
Standard EN 60947-1; EN 60 947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no. 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC".





Low voltage contactors LT1-F

5 YEAR WARRANTY *for industrial usage, 3 years warranty

The contactors LT 1- F are alternating current contactors used to control circuits and consumers operating in normal working conditions with switching on / off the consumer and dirty working environment. They are suitable for consumers with electrical power consumption from 115A to 800A.

Functions:
- frequently switching on/off heavy-loaded electrical circuits at controlling signal to the coil
- making of systems for consumers' control
- used as an operating element in process control panels
- remarkable with high reliability of current characteristics
- reliable separation of power contactors
- secured cover of the movable part of the contactor

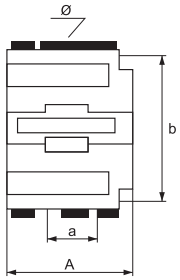
Technical data:
- Operation class: utilization category AC-3
- Rated operating voltage of power contactors: up to 1000V; 50/60Hz
- Composition of the power contact surfaces: unalloyed copper with coating 80% AgSnO
- Surge voltage wear resistance: >8000V
- Coil composition: pure coil copper QA-1 type
- Magnetic core composition: steel alloy 360
- Movable part composition: bakelite
- Limits of the controlling coil voltage: operating range of coil
- Joining terminal: screw terminal
- Connecting:
  - flexible conductors with or without cable terminal
  - rigid conductors
  - rail
- Electrical wear resistance (number of cycles):≥10000000
- Mechanical wear resistance (number of cycles):≥10000000
- Number of cycles (switching on) per hour: 200
- Pole leaking power: from 16 to 80W
- Mounting:
  - with bolts to the surface
  - mounting position: vertical gradient – maximum± 10°C
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m

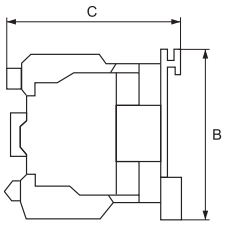
Type	Overall dimensions (mm)							
	A	B	C	L	M	Q	Q1	P
LT 1 F150	163.5	170	171	107	150	26	57.5	40
LT 1 F225	168.5	197	181	113.5	172	21	51.5	48
LT 1 F265	201.5	203	181	141	178	39	66.5	48
LT 1 F400	213	206	219	145	182	43	74	48
LT 1 F630	309	304	255	155	264	60	89	80
LT 1 F800	309	304	255	155	264	60	89	80

Type number	Motor rated capacity (kW)						Power consumption of coil (VA)			Rated current in AC-3 440V to up	Tightening moment (N.m)	Packing/ Box (pcs)	Catalogue number according to the coil voltage (V)						
	220V 230V	380V 400V	415V	440V	500V	660V 690V	1000V	closed	open				230V	400V	12V	24V	36V	48V	110V
LT1 - F115	30	55	59	59	59	80	60	45	550	115 A	18	1 / 4	**23111**	**23112**	**23113**	**23114**	**23115**	**23116**	**23117**
LT1 - F150	40	75	80	80	90	100	65	45	550	150 A	25	1 / 4	**23151**	**23152**	**23153**	**23154**	**23155**	**23156**	**23157**
LT1 - F225	63	110	110	110	129	129	100	55	805	225 A	35	1 / 2	**23861**	**23862**	**23863**	**23864**	**23865**	**23866**	**23867**
LT1 - F265	75	132	140	140	160	160	147	10	700	265 A	35	1 / 2	**23261**	**23262**	**23263**	**23264**	**23265**	**23266**	**23267**
LT1 - F400	110	200	220	250	257	280	185	18	1000	400 A	50	1 / 1	**23751**	**23752**					
LT1 - F630	200	335	375	400	400	450	450	25	1500	630 A	50	1 / 1	**23771**	**23772**					
LT1 - F800	250	450	450	450	450	475	450	15	1300	800 A	50	1 / 1	**23881**	**23882**					

Note: At mounting the containers from the series in control schemes a distance must be provided at the side of the contactor in case of eventual coil change.

Documents corresponding to the product:
Standard EN60947-1; EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no. 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC"





LP1-D 09~95

Low voltage contactors with direct current coil LP-1D

5 YEAR WARRANTY *for industrial usage, 3 years warranty

The contactors LP1 D are alternating current contactors with DC operating of coil for control. The power plugs of the contactor are designed for control of alternating current circuits and consumers operating in normal operating class AC-3 with frequently switching on/off the consumer and dirty working environment. The contactors are suitable for consumers with electrical power consumption from 9A to 225A.

Functions:
- switching on/off alternating current consumers in direct current controlling schemes at controlling signal to the coil
- making of systems for consumers' control
- used as an operating element in process control panels
- remarkable with high reliability of current characteristics
- reliable separation of power contacts
- secured cover of the movable part of the contactor

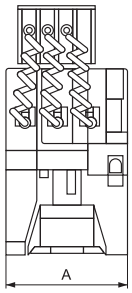
Technical data:
- Rated operating voltage of the coil: from 12V DC to 220V DC
- Rated operating voltage of the power circuit: up to 690V DC
- insulation voltage: 690V
- Surge voltage wear resistance: >8000V
- Limits of the controlling coil voltage: operating range of coil
- Joining terminal: screw terminal
- Connecting:
  - flexible conductors with or without cable terminal
  - rigid conductors
- Electrical wear resistance (number of cycles):≥10000000
- Mechanical wear resistance (number of cycles):≥10000000
- Number of cycles per hour: 1200 up to 32A; 600 for 40-95A
- Pole leaking power: up to 13W

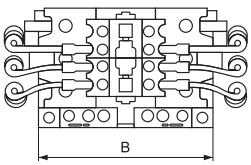
Mounting:
- on DIN-rail
- with bolts to the surface
- mounting position: vertical gradient – maximum± 5°
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m

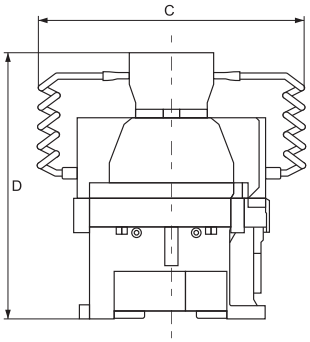
Type	Overall dimensions (mm)				
	A	B	C	a	b
LP 1 D0910	47	76	95	34/35	50/60
LP 1 D1210	47	76	95	34/35	50/60
LP 1 D1810	47	76	95	34/35	50
LP 1 D2510	57	86	101	40	50
LP 1 D3210	57	86	101	40	50
LP 1 D4011	77	129	176	40	100
LP 1 D5011	77	129	176	40	100
LP 1 D6511	77	129	176	40	100
LP 1 D9511	87	129	182	40	100
LP 1 F115	163.5	170	171	40	150
LP 1 F150	163.5	170	171	40	150
LP 1 F225	168.5	197	181	48	172

Type	Rated current (A)	Auxiliary contact (pcs.)	Rated capacity of the consumer (kW)					Packing/Box (pcs)	Catalogue number according to the coil voltage (V DC)					
			230V	400V	415V	440V	690V		12V	24V	36V	48V	110V	230V
LP 1 D0910	9	1NO	2.20	4.00	4.00	4.00	5.50	1/40	**23962**	**23098**	**23130**	**23971**	**23980**	**23139**
LP 1 D1210	12	1NO	3.00	5.50	5.50	5.50	7.50	1/40	**23963**	**23128**	**23131**	**23972**	**23981**	**23140**
LP 1 D1810	18	1NO	4.00	7.50	7.50	7.50	10.0	1/40	**23964**	**23188**	**23132**	**23973**	**23982**	**23141**
LP 1 D2510	25	1NO	5.50	11.0	11.0	11.0	15.0	1/30	**23925**	**23258**	**23133**	**23974**	**23983**	**23142**
LP 1 D3210	32	1NO	7.50	15.0	15.0	15.0	18.5	1/30	**23966**	**23328**	**23134**	**23975**	**23984**	**23143**
LP 1 D4011	40	1NO+1NC	11.0	18.5	18.5	18.5	30.0	1/10	**23967**	**23408**	**23135**	**23976**	**23985**	**23144**
LP 1 D5011	50	1NO+1NC	15.0	22.0	22.0	22.0	33.0	1/10	**23968**	**23508**	**23136**	**23977**	**23986**	**23145**
LP 1 D6511	65	1NO+1NC	18.5	30.0	30.0	30.0	37.0	1/10	**23969**	**23658**	**23137**	**23978**	**23987**	**23146**
LP 1 D9511	95	1NO+1NC	25.0	45.0	45.0	45.0	45.0	1/10	**23970**	**23958**	**23138**	**23979**	**23988**	**23147**
LP 1 F115	115	1NO	30.0	55.0	59.0	59.0	80.0	1/4	**23911**	**23118**	**23914**	**23917**	**23989**	**23148**
LP 1 F150	150	1NO	40.0	75.0	80.0	80.0	100	1/4	**23912**	**23158**	**23915**	**23918**	**23990**	**23149**
LP 1 F225	225	1NO	63.0	110	110	110	129	1/2	**23913**	**23228**	**23916**	**23919**	**23994**	**23201**

Documents corresponding to the product:
Standard EN60947-1; EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no. 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC"







Low voltage contactors for switching on of capacitor banks CJ19-43

5 YEAR WARRANTY *for industrial usage, 3 years warranty

The AC contactors CJ19-43 are specially designed electrical devices for commutation of three phase capacitors used for power correction. They are alternating current contactor LT1 Dxx with mounted a group for peak current lowering from the transitional process of the capacitor's switching on/off. This group is a combination of current limiting resistors, switched on in the beginning of the transitional process (switching on/off of the capacitor group).
The contactors are suitable for capacitors with rate up to 50 kVAr.

Functions:
- switching on/off of capacitor banks for reactive power compensation
- making of systems for compensation of the energy reactive component
- lowering of the peak transitional currents at switching on/off of the capacitor
- remarkable with high reliability of current characteristics
- reliable separation of power contacts
- secured part of the contactor against consumer contact
- do not allow manual operation

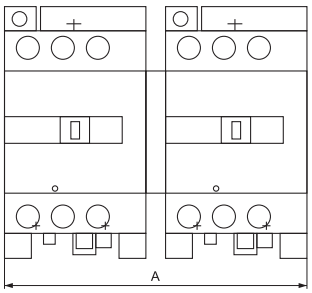
Technical data:
- Operation class: utilization category AC6b
- Rated operating voltage of the controlling coil: 230V AC; 50/60Hz
- Rated operating voltage of the power circuit: up to 690V AC
- insulation voltage: 690V
- Surge voltage wear resistance: >8000V
- Limits of the controlling coil voltage: from 0.8 to 1.15 Uc
- Number of the contacts: 3 NO power contacts +1NO operative
- Joining terminal: screw terminal
- Connecting:
  - flexible conductors with or without cable terminal
  - rigid conductors
- Electrical wear resistance (number of cycles):≥300000
- Mechanical wear resistance (number of cycles):≥1000000
- Number of cycles (switching on) per hour: up to 600
- Pole leaking power: up to 13W

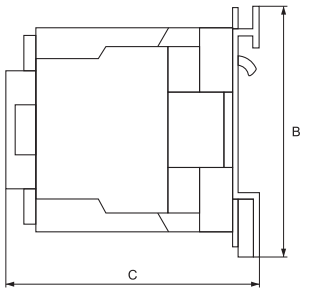
Mounting:
- on DIN-rail or
- with bolts to the surface
- mounting position: vertical gradient – maximum± 5°
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m

Type	Overall dimensions (mm)			
	A	B	C	D
CJ19-32 DPK	56	74	130	150
CJ19-40 DPK	75	127	180	150
CJ19-65 DPK	85	127	200	157
CJ19-95 DPK	85	127	200	157
CJ19-115DPK	122	165	230	157
CJ19-150DPK	122	165	230	157
CJ19-170DPK	122	165	230	157

Type	Rated current (A)	Rated capacity of the consumer (kVAr)		Coil voltage (V)	Packing/Box (pcs)	Catalogue number
		400/440V	690V			
CJ19-32 DPK	32	8	12.5	230	1/20	**23932**
CJ19-32 DPK	32	8	12.5	400	1/20	**23910**
CJ19-40 DPK	40	12.5	15	230	1/16	**23900**
CJ19-40 DPK	40	12.5	15	400	1/16	**23940**
CJ19-65 DPK	65	25	30	230	1/16	**23961**
CJ19-65 DPK	65	25	30	400	1/16	**23965**
CJ19-95 DPK	95	30	36	230	1/16	**23909**
CJ19-95 DPK	95	30	36	400	1/16	**23995**
CJ19-115 DPK	115	35	40	230	1/4	**23991**
CJ19-150 DPK	150	40	50	230	1/4	**23992**
CJ19-170 DPK	170	50	60	230	1/4	**23993**

Documents corresponding to the product:
Standard EN60947-1; EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no. 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC"





Reverse contactors LT4-Dxx

5 YEAR WARRANTY *for industrial usage, 3 years warranty

LT 4-Dxx series contactors is suitable for across- the line starting and reversing of-3 phase squirrel cage and slip ring motors. It consist of two magnetic contactors LT1D. The contactor is provided whit a built-in interlock safety mechanism. The contactor is used for reverse control of induction motors with shortly rotor. The contactors from the series are offered for consumers up to 95A.

Functions:
- switching on of electrical motors in one direction of rotation and reversing of the rotation direction at outside command
- making of control systems
- remarkable with high reliability of current characteristics
- reliable switching on or separation of power contacts
- secured part of the contactors against consumer contact
- secured cover of the movable part of the contactor
- impossibility for simultaneous switching on of the two contactors from the group due to mechanical locking

Technical data:
- Operation class: AC 3
- Rated operating voltage of the controlling coil: 230V AC; 50/60 Hz
- Rated operating voltage of the power circuit: up to 690V AC
- insulation voltage: 690V
- Surge voltage wear resistance: >8000V
- Limits of the controlling coil voltage: from 0.8 to 1.15 Uc
- Number of plugs: 3 NO power contacts +1NO operative (for contactors over 40A there is also additional 1NC contact)
- Joining terminal: screw terminal
- Connecting:
  - flexible conductors with or without cable terminal
  - rigid conductors

Note: The contactors are offered without factory cabling
- Electrical wear resistance (number of cycles):≥1 000 000
- Mechanical wear resistance (number of cycles):≥10 000 000
- Number of cycles (switching on) per hour: up to 600
- Pole leaking power: up to 13W

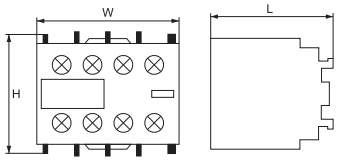
Mounting:
- on DIN-rail or
- with bolts to the surface
- mounting position: vertical gradient – maximum± 5°
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m

Type	Overall dimensions (mm)		
	A	B	C
LT 4 - D1810	100	70	83
LT 4 - D2510	130	80	98
LT 4 - D3210	130	80	105
LT 4 - D4011	167	126	116
LT 4 - D6511	167	126	116
LT 4 - D9511	182	127	127

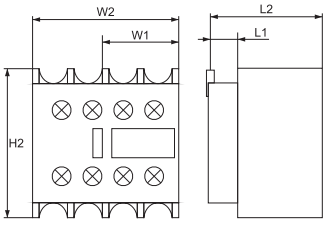
Type	Rated current (A)	Rated capacity of the consumer (kW)					Packing/ Box (pcs)	Catalogue number
		230V	400V	415V	440V	690V		
LT 4 D1810	18	4	7.5	7.5	7.5	10	1 / 20	**23301**
LT 4 D2510	25	5.5	11	11	11	15	1 / 20	**23302**
LT 4 D3210	32	7.5	15	15	15	18.5	1 / 20	**23303**
LT 4 D4011	40	11	18.5	18.5	18.5	30	1 / 8	**23304**
LT 4 D6511	65	18.5	30	30	30	37	1 / 8	**23305**
LT 4 D9511	95	25	45	45	45	45	1 / 6	**23306**

Documents corresponding to the product:
Standard EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no. 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC"

LT01-KNxx



LT01-DNxx



Dimensions (mm)

H	W	L	W1	W2
32	40	35	26	45
H2	L1	L2		
48	6,5	37		

Auxiliary contacts

5 YEAR WARRANTY *for industrial usage, 3 years warranty

Auxiliary contacts
At necessity the element provide auxiliary number of contacts. They are specially designed for mounting on the movable part of the magnetic core of the contactors LT 1K/D series.

Functions:
- extending the number of the operative contactors up to 4 in different
- Combinations
  - switches on simultaneously with the other contact system of the contactor
- Operation class: AC 3
- insulation voltage: 690V
- Joining terminal: screw terminal
- Connecting:
  - flexible conductors with or without cable terminal
  - rigid conductors

Mounting:
- on the movable cover of the contactor through pinching
- mounting position: vertical gradient – maximum± 5°
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)

Type	Number of contacts	Rated current	Section of the conductor (mm2)	Catalogue number
LT01-DN02	2NC	6A	0,5-1	**23002**
LT01-DN11	NO+NC	6A	0,5-1	**23011**
LT01-DN20	2NO	6A	0,5-1	**23020**
LT01-DN22	2NO+2NC	6A	0,5-1	**23022**
LT01-DN40	4NO	6A	0,5-1	**23040**
LT01-DN04	4NC	6A	0,5-1	**23004**
LT01-KN11	NO+NC	6A	0,5-1	**23001**
LT01-KN22	2NO+2NC	6A	0,5-1	**23003**

Auxiliary contacts LT03-DN11

5 YEAR WARRANTY *for industrial usage, 3 years warranty

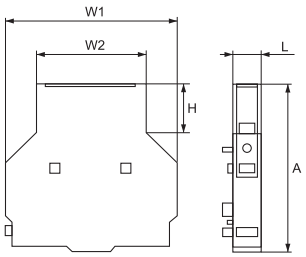
Providing on necessity additional number of plug points and are mounted sideward to the movable part of the magnetic cores of contactors of the series LT1 D. Variants with two additional plug points NO and NC are offered.

Functions:

- expanding the number of the operational plug points
- switching on simultaneously with the rest of the contact system
- of the contactor

Technical characteristics:

- Environment operational regime: AC 3
- Insulation voltage: 690V
- Double connector: screw connector
- Connection:
  - flexible conductors with or without cable end
  - solid conductors
- Mounting method:
  - mounting position – sideward to the contactor
- Plastic: resistant to UV and non-burning (self-extinguishing material)



Type	Rated current	Section of the conductor (mm2)	Catalogue number
LT03-DN11	6A	0,5-1	**23311**

Dimensions (mm)

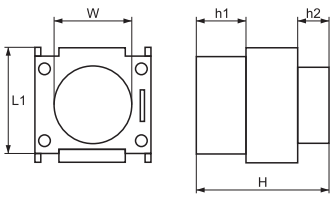
W1	W2	H	L	A
73	48	22	12,5	72

Time delay contact block LT02-Dxx

5 YEAR WARRANTY *for industrial usage, 3 years warranty

LT02-Dxx is designed to set time intervals from 0.1 to 180s in different control schemes. It is used most frequently in combination with contactors from LT1-Dxx series to form "star/delta" starters for electrical motor control, as it provides the necessary time for motor winding.

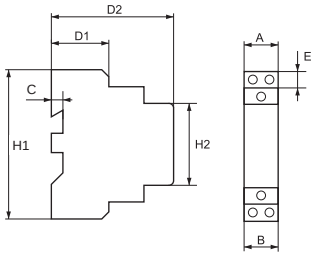
Type	Number of contacts	Time delay	Catalogue number
LT02-DT0	NO+NC	0.1~3s	**23901**
LT02-DT2	NO+NC	0.1~30s	**23902**
LT02-DT4	NO+NC	10~180s	**23903**



Dimensions (mm)

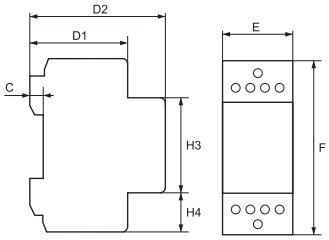
W	L1	h1	h2	H
33	48	22	14	59
W2				
45				

Documents corresponding to the product:
Standard EN 61095
The products are in accordance with the directives of EC "Low voltage directives (LVD) no. 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC"



Dimensions (mm)

H1	C	D1	D2	A	E
81	5	31	66	18	9



Dimensions (mm)

C	D1	D2	H3	H4
5	66	48	45	20

E	F
35	85

Module contactors K series

5 YEAR WARRANTY *for industrial usage, 3 years warranty

Modular contactors K series are used for commutation of mono-phase and three-phase low power electrical consumers. They provide connection between the consumers in small overall dimensions, silent work, mounting only at DIN-rails.

Functions:
- switching on of consumers
- making of control systems
- remarkable with high reliability of current characteristics
- reliable switching on or separation of power contacts

Technical data:
- Operation class: AC 7a
- Rated operating voltage of the controlling coil: 230V AC; 50/60 Hz
- Rated operating voltage of the power circuit: up to 690V AC
- insulation voltage: 690V
- Surge voltage wear resistance: >8000V
- Joining terminal: screw terminal
- Connecting:
  - flexible conductors with or without cable terminal
  - rigid conductors

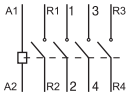
Mounting:
- on DIN-rail or
- mounting position: vertical gradient – maximum± 5°
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m

Type	In	Coil voltage (V)	Contacts	Packing/Box (pcs)	Catalogue number
K20	20A	230V	2NO	1/12/120	**23008**
K20	20A	230V	NO+NC	1/12/120	**23007**
K20	20A	230V	2NC	1/12/120	**23009**
K20	25A	230V	NO+NC	1/12/100	**23012**
K20	25A	230V	2NO	1/12/100	**23013**
K20	25A	230V	2NC	1/10/100	**23014**
K20	40A	230V	NO+NC	1/6/60	**23015**
K20	40A	230V	2NO	1/6/60	**23016**
K20	40A	230V	2NC	1/6/60	**23017**
K40	25A	230V	2NO+2NC	1/6/60	**23410**
K40	25A	230V	3NO+1NC	1/6/60	**23411**
K40	25A	230V	4NO	1/6/60	**23412**
K40	25A	230V	4NC	1/6/60	**23413**
K40	40A	230V	2NO+2NC	1/4/40	**23422**
K40	40A	230V	3NO+1NC	1/4/40	**23423**
K40	40A	230V	4NO	1/4/40	**23409**
K40	40A	230V	4NC	1/4/40	**23424**
K40	63A	230V	2NO+2NC	1/4/40	**23425**
K40	63A	230V	3NO+1NC	1/4/40	**23426**
K40	63A	230V	4NO	1/4/40	**23427**
K40	63A	230V	4NC	1/4/40	**23428**

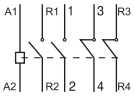
2NO

NO+NC

2NC



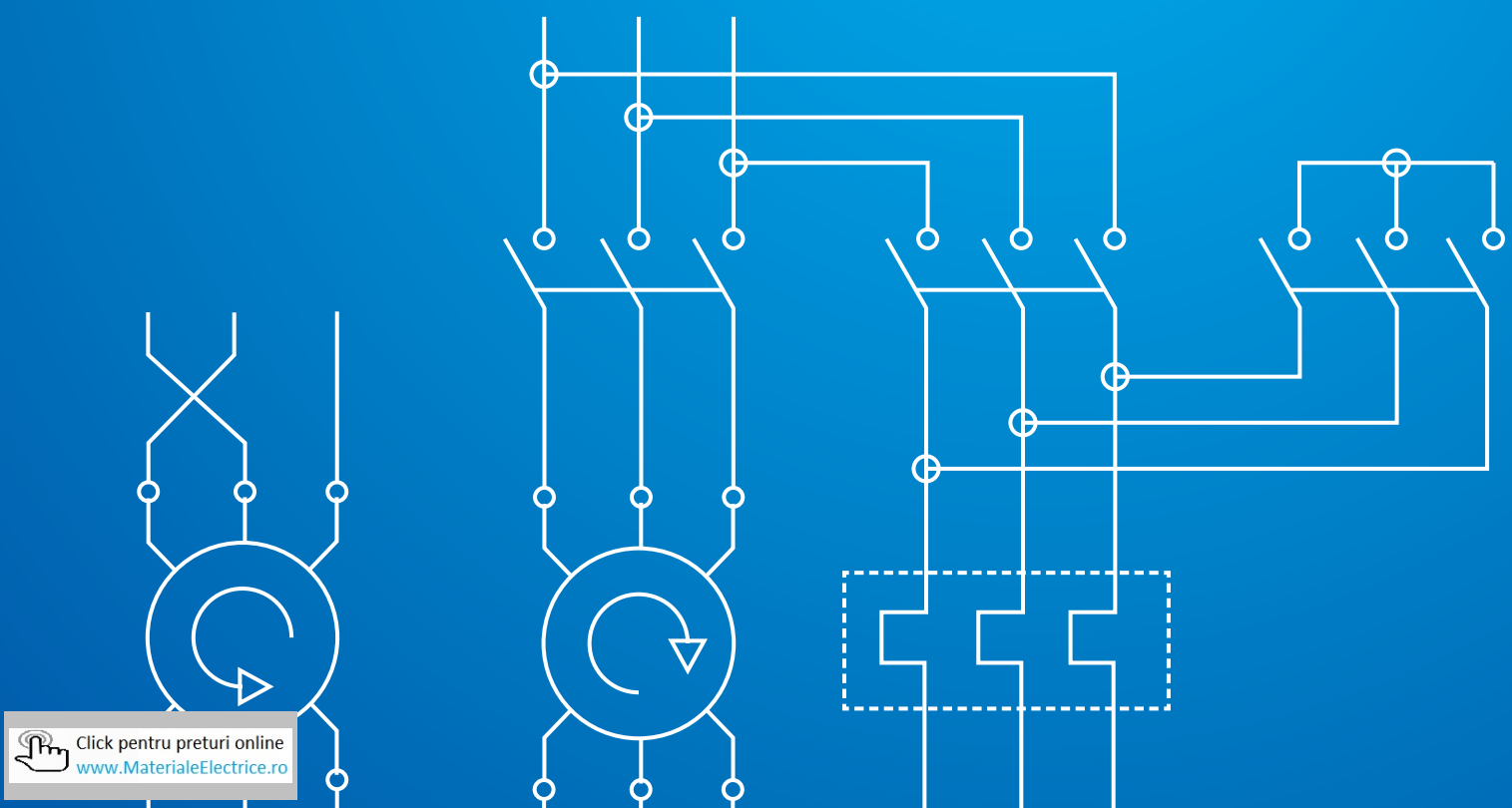
4NO



2NO+2NC

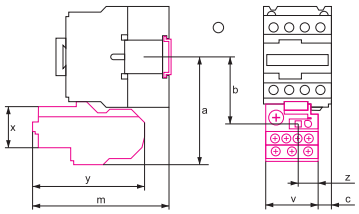
DEVICES FOR CONTROLAND PROTECTION OF ELECTRICAL MOTORS

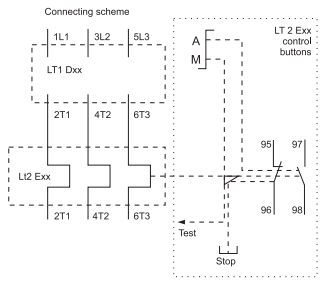
DEVICES
FOR CONTROLAND PROTECTION
OF ELECTRICAL MOTORS

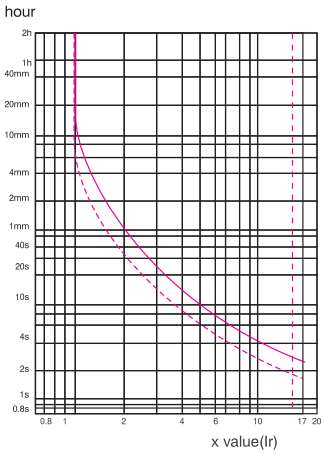


ELMARK

Documents corresponding to the product:
Standard EN 60947-1
EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC".







Thermal overload relays

5 YEAR WARRANTY *for industrial usage, 3 years warranty

The thermal relays LT 2- K/Exx series are three pole relays designed for protection of induction motors from overload or overheat. They are mounted to contactors LT 1 K/Dxx series and an operating circuit for motor control is passed through their NC contacts. They have bimetallic releases /1 per phase/ through them the motors current flows and indirectly mated. The bimetallic releases bend subject to the influence of mating and this results in tripping of the relay. The contacts change switch position. The choice of a suitable protection prevents motor's operation at unusual temperature conditions and guarantees maximum constant operation, increases the effectiveness and prolongs the term of exploitation.

Functions:
- switching off alternating current consumers at current overload
- making of control systems for consumers
- used as a protective operating element in control panels of induction motors
- remarkable with high reliability of current characteristics

Technical data:
- Rated operating voltage: up to 690V AC; 50/60 Hz
- Rated operating current range: up to 690V AC
- insulation voltage: >690V
- Surge voltage wear resistance:≥6000V
- Joining terminal: screw terminal
- temperature compensation: -25 +55
- tripping category: class 10A
- Connecting:
  - flexible or rigid conductors with or without cable terminal for joining to the consumer
  - to the contactor through the relay terminals
  - the connecting terminals with the consumer can be adjusted according to the type of the contactor
- Electrical wear resistance (number of cycles):≥1000000
- Mechanical wear resistance (number of cycles):≥10000000
- Indication for protection activating
- Possibility for choice of the protection restoring (through the blue button)
- Possibility for range adjustment of the protection activating
- Possibility for operation at higher frequency

Mounting:
- mounting to the contactor: to the terminals of the contactor as it is additionally clamped to its frame through a pin
- mounting position: vertical gradient – maximum ± 5°
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Ambient temperature: -10°C + 65°C
- Installation altitude: up to 2000m

Note: To protect the consumer from short circuit, before the combination contactor- thermal relay, a suitably measured breaker or safety device should be mounted.

Type	Dimensions (mm)							
	a	b	c	m	x	y	v	z
LT 2 - Kxx	81	50	0	98	47	92	44	17
LT 2 - E13xx	86	55	10.7	108	47	92	44	17
LT 2 - E23xx	86	55	9	109	47	92	44	17
LT 2 - E33xx	115	76	9.5	124	54	109	70	30

For contactor LT1-K06 type	Motor capacity (kW) 220V 230V	380V 400V	660V 690V	Rated current (A)	Protection adjustment range	Packing/Box (pcs)	Catalogue number
LT2-K0303	-	-	-	0.30	0.25 - 0.30	1 / 100	**13403**
LT2-K0306	-	0.37	1.10	1.20	0.80 - 1.20	1 / 100	**13406**
LT2-K0307	0.37	0.75	1.50	1.80	1.20 - 1.80	1 / 100	**13407**
LT2-K0308	0.75	1.10	2.20	2.60	1.80 - 2.60	1 / 100	**13408**
LT2-K0310	1.10	1.50	3.00	3.70	2.60 - 3.70	1 / 100	**13410**
LT2-K0312	1.10	2.20	4.00	5.50	3.70 - 5.50	1 / 100	**13411**
LT2-K0314	2.20	4.00	5.50	8.00	5.50 - 8.00	1 / 100	**13412**
LT2-K0316	3.00	5.00	7.50	11.5	8.00 - 11.5	1 / 100	**13413**

For contactor LT1-D9 to LT1-D25 type	Motor capacity (kW) 220V 230V	380V 400V	660V 690V	Rated current (A)	Protection adjustment range	Packing/ Box (pcs)	Catalogue number
LT2-E1301	-	-	-	0.16	0.10 - 0.16	1 / 100	**13001**
LT2-E1302	-	-	-	0.25	0.16 - 0.25	1 / 100	**13002**
LT2-E1303	-	-	-	0.40	0.25 - 0.40	1 / 100	**13003**
LT2-E1304	-	-	0.37	0.63	0.40 - 0.63	1 / 100	**13004**
LT2-E1305	-	-	0.55	1.00	0.63 - 1.00	1 / 100	**13005**
LT2-E1306	-	0.37	1.10	1.60	1.0 - 1.60	1 / 100	**13006**
LT2-E1307	0.37	0.75	1.50	2.50	1.6 - 2.50	1 / 100	**13007**
LT2-E1308	0.75	1.50	3.00	4.00	2.5 - 4.00	1 / 100	**13008**
LT2-E1310	1.10	2.20	4.00	6.00	4.0 - 6.00	1 / 100	**13010**
LT2-E1312	2.00	3.70	5.50	8.00	5.5 - 8.00	1 / 100	**13012**
LT2-E1314	2.20	4.00	7.50	10.0	7.0 - 10.0	1 / 100	**13014**
LT2-E1316	3.70	5.50	11.0	13.0	9.0 - 13.0	1 / 100	**13016**
LT2-E1321	4.00	7.50	15.0	18.0	12.0 - 18.0	1 / 100	**13021**
LT2-E1322	5.50	9.00	18.5	25.0	17.0 - 25.0	1 / 100	**13022**
LT2-E1353	9.00	11.0	18.5	33.0	23.0 - 32.0	1 / 100	**13053**

For contactor LT1-D32 type	Motor capacity (kW) 220V 230V	380V 400V	660V 690V	Rated current (A)	Protection adjustment range	Packing/ Box (pcs)	Catalogue number
LT2-E2353	11	11	18.5	32	23.0 - 32.0	1 / 100	**13253**
LT2-E2355	15	15	22.0	36	28.0 - 36.0	1 / 100	**13255**

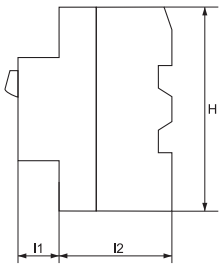
For contactor LT1-D40 to LT1-D95 type	Motor capacity (kW) 220V 230V	380V 400V	660V 690V	Rated current (A)	Protection adjustment range	Packing/ Box (pcs)	Catalogue number
LT2-E3355	18.5	18.5	30	40	30.0 - 40.0	1 / 50	**13355**
LT2-E3357	22	22	30	50	37.0 - 50.0	1 / 50	**13357**
LT2-E3359	30	30	37	65	48.0 - 65.0	1 / 50	**13359**
LT2-E3363	45	45	55	80	63.0 - 80.0	1 / 50	**13363**
LT2-E3365	55	55	75	93	80.0 - 93.0	1 / 50	**13365**

For contactor LT1-F115 to LT1-F150	Motor capacity (kW) 220V 230V	380V 400V	660V 690V	Rated current (A)	Protection adjustment range	Packing/ Box (pcs)	Catalogue number
LT2-F4367	40	75	100	150	90-150	1/30	**13367**

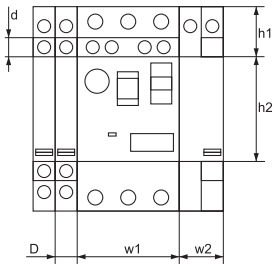
For contactor LT1-F225 to LT1-F400	Motor capacity (kW) 220V 230V	380V 400V	660V 690V	Rated current (A)	Protection adjustment range	Packing/ Box (pcs)	Catalogue number
LT2-F4368	63	110	129	220	132-220	1/30	**13368**
LT2-F4369	100	160	220	330	200-330	1/18	**13369**
LT2-F4370	147	250	335	500	300-500	1/18	**13370**

For contactor LT1-F630	Motor capacity (kW) 220V 230V	380V 400V	660V 690V	Rated current (A)	Protection adjustment range	Packing/ Box (pcs)	Catalogue number
LT2-F4371	200	335	450	630	380-630	1/18	**13371**

Dimensions



Auxiliary contact UVR



Dimensions (mm)

H	l1	l2	d	D
89	16	50	10	9,2
w1	w2	h1	h2	
44,5	18	22	45	

Thermomagnetic automatic breaker TM2/TM3

5 YEAR WARRANTY *for industrial usage, 3 years warranty

The thermomagnetic automatic breakers TM 2-Exx series are devices designed for control and protection of induction motors from overload, overheat or short circuit. The overload motor protection is carried out by the built in the breaker thermal elements, and the short circuit protection is carried out by the magnetic elements. These magnetic elements allow the adjustment of the current leakage which is 13 times the maximum current of the thermal protection. The overload protection elements include automatic compensation for the ambient temperature changes. In combination with under voltage release the thermomagnetic breaker TM 2-Exx also provides protection of the motors from fall out of a phase from the power supply. The choice of a suitable protection prevents motor's operation at unusual temperature conditions and guarantees maximum constant operation, increases the effectiveness and prolongs the term of exploitation.

Functions:

- switching off alternating current consumers at current overload
- switching off the electrical circuit to the consumer at inlet short circuit
- protects the motor at lack/lowering of the phase voltage (if there is under voltage release)
- used as a protective operating element in control panels of induction motors
- remarkable with high reliability of current characteristics
- possibility for change/choice of the protection current (according to the operating current of the motor)
- automatic compensation of the ambient temperature

Technical data:

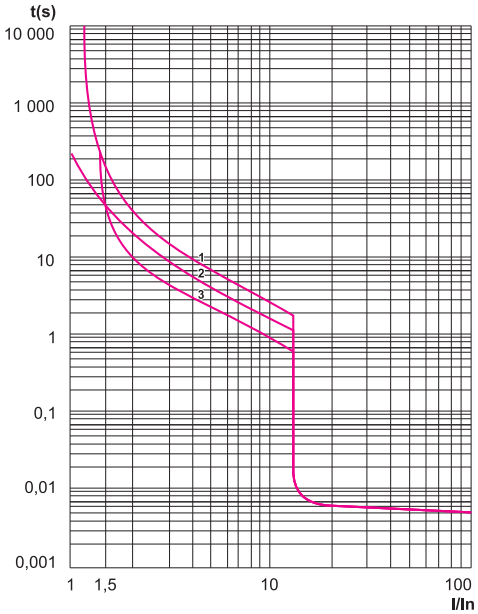
- Rated operating voltage: up to 690V AC; 50/60 Hz
- Rated operating current range: from 0.1 to 80A according to the type in table 1
- insulation voltage: 690V
- Surge voltage wear resistance:≥6000V
- Joining terminal: screw terminal
- Connecting:
  - flexible or rigid conductors with or without cable terminal for joining to the consumer
  - to the contactor through the relay terminals
  - the connecting terminals with the consumer can be adjusted according to the type of the contactor
- Electrical wear resistance (number of cycles):≥1000000
- Mechanical wear resistance (number of cycles):≥10000000
- Indication for protection activating
- Switching on of the breaker manually with button "I" and switching off with button "O" manually or automatically at failure or after activating of the protection
- Possibility for range adjustment of the protection activating
- Possibility for operation at higher frequency
- Possibility for independent operation or as an element of an automation system
- tripping category: class 10A

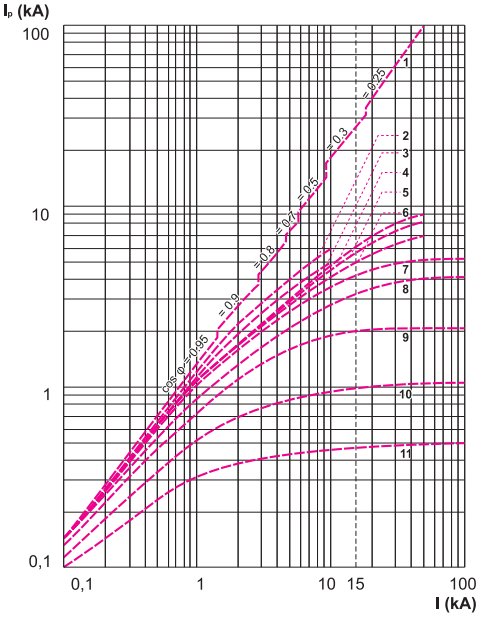
Mounting:

- mounting to DIN-rail
- mounting position: vertical gradient – maximum± 5°
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m

ELMARK

Thermomagnetic automatic breaker





Type	Rated capacity of three-phase motor in AC-3 category					instan-taneous short-circuit release (A)	Current setting range (A)	Thermal current Ithe TM2-E (A)	Packing/Box (pcs)	Catalogue number
	220V 230V	400V 410V	440V	500V	690V					
TM2-E01	-	-	-	-	-	1.5	0.1 - 0.16	0.16	1 / 50	**48001**
TM2-E02	-	0.06	0.06	-	-	2.4	0.16 - 0.25	0.25	1 / 50	**48002**
TM2-E03	0.06	0.09	0.09	-	-	5.0	0.25 - 0.40	0.40	1 / 50	**48003**
TM2-E04	-	0.12	0.18	-	0.37	8.0	0.40 - 0.63	0.63	1 / 50	**48004**
TM2-E05	0.09	0.25	0.25	0.37	0.55	13.0	0.63 - 1.00	1	1 / 50	**48005**
TM2-E06	0.18	0.37	0.37	0.37	0.75	22.5	1 - 1.60	1.6	1 / 50	**48006**
TM2-E07	0.37	0.75	0.75	1.10	1.50	33.5	1.6 - 2.50	2.5	1 / 50	**48007**
TM2-E08	0.55	1.10	1.50	1.50	2.20	51.0	2.5 - 4.00	4	1 / 50	**48008**
TM2-E10	1.10	2.20	2.20	3.00	4.00	78.0	4 - 6.30	6.3	1 / 50	**48010**
TM2-E14	1.50	3.00	4.00	4.00	5.50	138	6 - 10.0	9	1 / 50	**48014**
TM2-E16	2.20	5.50	5.50	7.50	9.00	170	9 - 14.0	13	1 / 50	**48016**
TM2-E20	4.00	7.50	7.50	9.00	15.0	223	13 - 18.0	17	1 / 50	**48020**
TM2-E21	5.50	9.00	11.0	11.0	18.5	327	17 - 23.0	21	1 / 50	**48021**
TM2-E22	5.50	11.0	11.0	15.0	22.0	327	20 - 25.0	23	1 / 50	**48022**
TM2-E32	7.50	15.0	15.0	18.5	22.0	416	24 - 32.0	24	1 / 50	**48032**
TM3-E40	11.0	18.5	22.0	25.0	33.0	480	25 - 40.0	32	1 / 15	**48040**
TM3-E63	15.0	30.0	33.0	40.0	55.0	550	40 - 63.0	50	1 / 15	**48063**
TM3-E80	22.0	40.0	45.0	55.0	63.0	665.5	56 - 80.0	64	1 / 15	**48080**

Documents corresponding to the product:
Standard EN 60947-1
EN 60 947-2; EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC".

Voltage release (VR) for TM 2

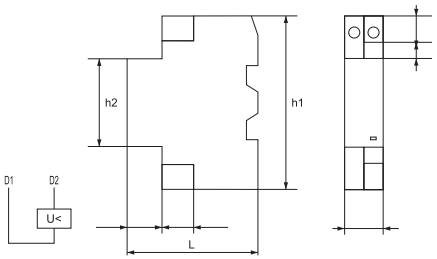
5 YEAR WARRANTY *for industrial usage, 3 years warranty

For increasing the effectiveness of the thermomagnetic breakers TM 2-Exx operation, they can be supplied with auxiliary devices, designed for widening the practice range and improving the technical characteristics of the breakers.

The release is designed to switch off the thermomagnetic breaker when the controlling voltage falls under breaking level 0.55 to 0.7 UN and does not allow switching on of the breaker unless the voltage is over 0.85 Un.

Functions:
- switching off the breaker at power supply voltage fall under 0.55 – 0.7 Un
- does not allow switching on of the breaker when the power supply voltage is under 0.85 Un
- prevents unwarranted secondary start of the breaker at falling off and restoring of the power supply voltage
- protects the motor at lack/lowering of the phase voltage
- used as a protective operating element in control panels of induction motors
- remarkable with high reliability of current characteristics

Mounting:
- laterally to a breaker
- At the side of the breaker through special openings



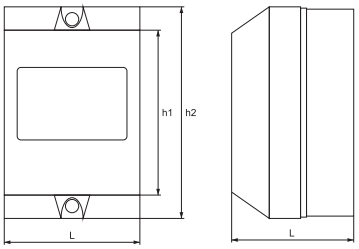
Type	Voltage (V)	Catalogue number
TM2 AU225	230	**48099**
TM3 AU385	400	**48098**

Documents corresponding to the product:
Standard EN 60529

Watertight box for TM 2-E

5 YEAR WARRANTY *for industrial usage, 3 years warranty

Specially designed plastic box with silicon screen for increasing the IP code from dust and moisture to IP 65.
Designed for thermal-magnetic circuit breakers of up to 32A
- Mounting:
  - mounting position: vertical gradient – maximum± 5°
  - mounted to horizontal surfaces (walls) with bolts
  - the breaker TM2 Exx is fixed inside of it on rail
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)

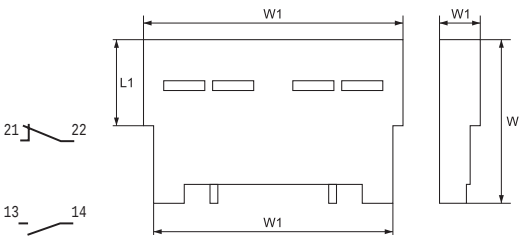


Type	Catalogue number
TM2 E	**8083**

Auxiliary contact block TM2 AE11- front mounting

5 YEAR WARRANTY *for industrial usage, 3 years warranty

It is designed to switch on operational systems or signalization. Designed with one NO and one NC contact.
It changes the position of its contacts according to the position of the breaker (switched on/off) to which it is mounted.
- Mounting:
  - laterally to a breaker TM2-Exx
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m



Type	Catalogue number
TM2 AE11	**48912**

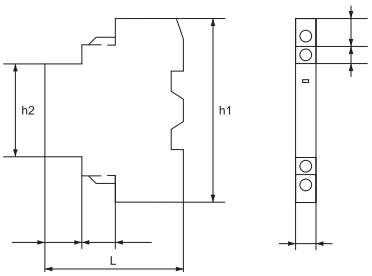
Auxiliary contact block TM2 AE11- side mounting

5 YEAR WARRANTY *for industrial usage, 3 years warranty

It is designed to switch on operational systems or signalization. Designed with one NO and one NC contact. It changes the position of its contacts according to the position of the breaker (switched on/off) to which it is mounted.

- Mounting:
  - laterally to a breaker TM2-Exx
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m

Type	Catalogue number
TM2 AN11	**48911**
TM3 AN11	**48913**



Documents corresponding to the product:
Standard EN 60947-1
EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC".

Starters for direct start

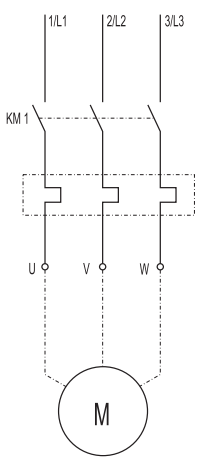
5 YEAR WARRANTY *for industrial usage, 3 years warranty

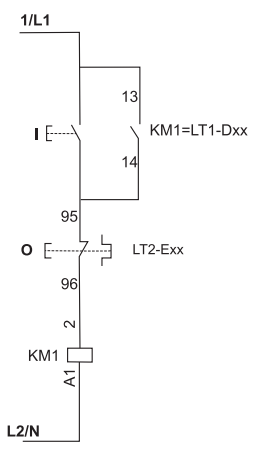
The electromagnetic starters LT 5 Dxx series are devices designed for remote control, direct control and protection of induction motors or other electrical consumers. They are a combination of contactors LT 1 Dxx series and thermal protection LT 2 Exx factory cabled. The starters are offered on the market in metal or plastic boxes with the corresponding IP code from dust and moisture. At mounting there should be provided protection of the device from short circuit through breakers or disconnectors. If necessary, at client's order the factory mounted thermal protection in the pneumatic starter can be substituted. The choice of a suitable protection prevents motor's operation at unusual temperature conditions and guarantees maximum constant operation, increases the effectiveness and prolongs the term of exploitation.

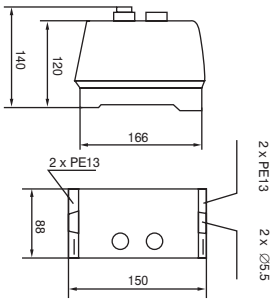
Functions:
- switching on/off alternating current consumers
- does not allow secondary unwarranted switching on of the starter at transitory lowering of the voltage
- protects the motor from overload in the range of the corresponding thermal protection
- remarkable with high reliability of current characteristics

Technical data:
- Rated voltage of the controlling voltage: 230/400V AC; 50/60 Hz

Note: In case you need different controlling coils voltage of the starters you can turn to our regional representatives.
- Rated operating voltage: 690V
- Rated operating current range: from 7 to 93 A AC
- insulation voltage: 690V
- Surge voltage wear resistance:≥6000V
- Joining terminal: screw terminal
- Little power consumption and small dimensions
- Connecting:
  - flexible or rigid conductors with or without cable terminal for joining to the consumer and section according to the motor power
  - two by two inlets/outlets supplied with orifices for the cables
- Possibility for range adjustment of the protection activating
- IP code: IP 44
- Possibility for operation at higher frequency
- Mounting:
  - mounting to a flat surface (wall) with bolts/screws
  - mounting position: vertical gradient – maximum± 5°
- Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
- Metal corpus: corrosion-proof coating
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m

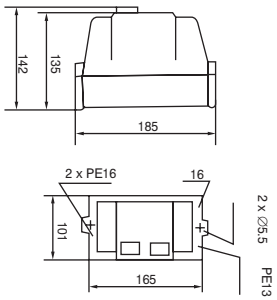






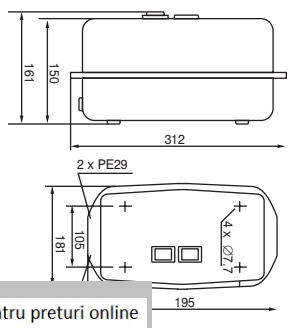
Type	Rated capacity of motors 50/60Hz AC-3 category 220V 230V	380V 400V	415V 440V	Rated current (A)	Thermal relay adjustment range	Coil voltage (V)	Packing/ Box (pcs)	Catalogue number
LT5 D093	2.2	4.0	4.0	9	7 .. 10A	230	1 / 16	**43091**
						400	1 / 16	**43092**
LT5 D123	3.0	5.5	5.5	12	9 .. 13A	230	1 / 16	**43121**
						4.0	1 / 16	**43122**
LT5 D185	4.0	7.5	9.0	18	12 .. 18A	230	1 / 16	**43181**
						400	1 / 16	**43182**

Note: Upon request the thermal relay will be replaced



Type	Rated capacity of motors 50/60Hz AC-3 category 220V 230V	380V 400V	415V 440V	Rated current (A)	Thermal relay adjustment range	Coil voltage (V)	Packing/ Box (pcs)	Catalogue number
LT5 D255	5.5	11	11	25	17 .. 25A	230	1 / 16	**43251**
						400	1 / 16	**43252**
LT5 D325	7.5	15	15	32	23 .. 32A	230	1 / 16	**43321**
						400	1 / 16	**43322**

Note: Upon request the thermal relay will be replaced



Type	Rated capacity of motors 50/60Hz AC-3 category 220V 230V	380V 400V	415V 440V	Rated current (A)	Thermal relay adjustment range	Coil voltage (V)	Packing/ Box (pcs)	Catalogue number
LT5 D405	11.0	18.5	22	40	30 .. 40A	230	1/6	**43401**
						400	1/6	**43402**
LT5 D655	18.5	30.0	37	65	48 .. 65A	230	1/6	**43651**
						400	1/6	**43652**
LT5 D955	25.0	45.0	45	95	80 .. 93A	230	1/6	**43951**
						400	1/6	**43952**

Note: Upon request the thermal relay will be replaced

Documents corresponding to the product:
Standard EN 60947-1
EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC".

"Star/delta"starter

5 YEAR WARRANTY *for industrial usage, 3 years warranty

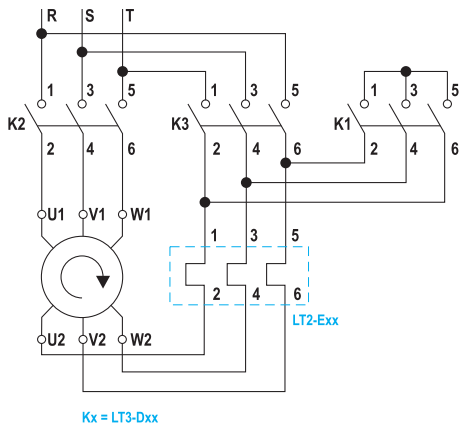
The electromagnetic starters LT 3 Dxx series are devices designed for remote control, direct control and protection of induction motors coiled and operating according to a starter scheme "star/delta". They are a combination of three contactors LT 1 Dxx series, time relay and a set of buttons "start" and "stop" factory cabled. They provide the easy motor unwinding giving possibility for setting the time for unwinding in "star" as the time for switching between "star" and "delta" is fixed to 0.5 seconds.
The starters are offered on the market in two types:
- closed type – metal boxes providing the corresponding IP code from dust and moisture (IP 54) as at mounting there should be provided protection of the device from short circuit through breakers or disconnectors
- open type – for mounting in distribution boxes as at mounting there should be provided protection of the device from short circuit through breakers or disconnectors

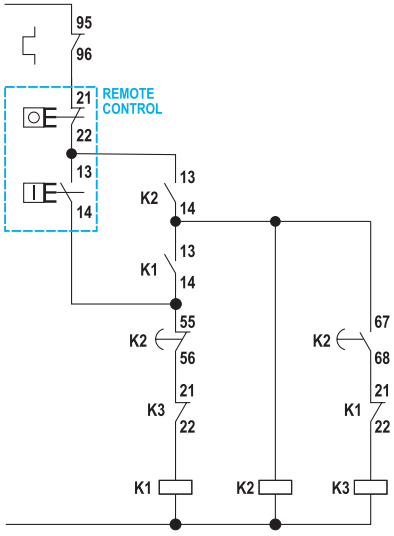
The starters are offered on the market without mounted thermal protection which is purchased separately according to the motor capacity. The choice of a suitable protection prevents motor's operation at unusual temperature conditions and guarantees maximum constant operation, increases the effectiveness and prolongs the term of exploitation.
If necessary, at client's order the power supply operating voltage of the pneumatic starter can be changed.

Functions:
- switching on/off alternating current three phase motors operating according to a scheme "star - delta"
- does not allow secondary unwarranted switching on of the starter at transitory lowering of the voltage
- protects the motor from overload in the range of the corresponding thermal protection
- indication of the operating condition through a valve indicator
- possibility for mounting of additional contacts (for the open type)
- remarkable with high reliability of current characteristics

Technical data:
- Rated voltage of the controlling voltage: 400V AC; 50/60 Hz

Note: In case you need different controlling coils voltage of the starters you can turn to our regional representatives.
- Rated operating voltage: 690V
- Rated operating current range: from 7 to 93A AC
- insulation voltage: >690V
- Surge voltage wear resistance:≥6000V
- Joining terminal: screw terminal
- Little power consumption and small dimensions
- Connecting:
  - flexible or rigid conductors with or without cable terminal for joining to the consumer and section according to the motor power
  - three by three inlets/outlets supplied with orifices for the cables
- Possibility for operation at higher frequency
- IP code: IP54
- Mounting:
  - mounting to a flat surface (wall) with bolts/screws
  - mounting position: vertical gradient – maximum± 5°
- The metal body is covered with corrosion-proof paint
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m





Type designation (without a box)	Overall dimensions (mm)		
	height	width	depth
LT3-D25A	135	170	160
LT3-D32A	135	170	160
LT3-D40A	150	285	190
LT3-D65A	150	285	190
LT3-D95A	150	310	190

Type designation (without a box)	Rated capacity (kW)				Rated current (A)	Coil voltage (V AC)	Packing/ Box (pcs)	Catalogue number
	220V 230V	380V 400V	415V	440V				
LT3-D25A	11	15	15	15	25	400	1 / 6	**43253**
LT3-D32A	15	18.5	18.5	18.5	32	400	1 / 6	**43323**
LT3-D40A	18.5	22	22	22	40	400	1 / 4	**43403**
LT3-D65A	30	55	55	55	65	400	1 / 4	**43653**
LT3-D95A	37	75	75	75	95	400	1 / 4	**43953**

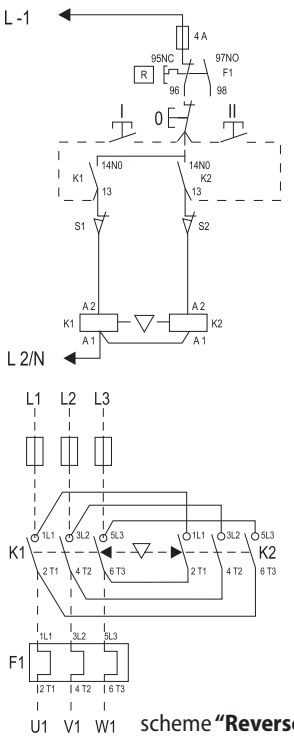
Note: It is necessary that thermal protection with suitable range is mounted to protect the controlled motor.
The shown values of magnetic starters are for normal regimes for motor control, for hard operation regimes are chosen starters which correspond to the current rating of the motor.

Type designation (with box)	Overall dimensions (mm)		
	height	width	depth
LT 3 -B-D25A	370	240	160
LT 3 -B-D32A	370	240	160
LT 3 -B-D40A	470	265	160
LT 3 -B-D65A	470	265	160
LT 3 -B-D95A	470	265	160

Type designation (with box)	Rated capacity (kW)				Rated current (A)	Coil voltage (V AC)	Packing/ Box (pcs)	Catalogue number
	220V 230V	380V 400V	415V	440V				
LT 3 - B - D25A	11	15	15	15	25	400	1 / 4	**43254**
LT 3 - B - D32A	15	18.5	18.5	18.5	32	400	1 / 4	**43255**
LT 3 - B - D40A	18.5	22	22	22	40	400	1 / 2	**43256**
LT 3 - B - D65A	30	55	55	55	65	400	1 / 4	**43257**
LT 3 - B - D95A	37	75	75	75	95	400	1 / 2	**43258**

Note: It is necessary that thermal protection with suitable range is mounted to protect the controlled motor.
The shown values of magnetic starters are for normal regimes for motor control, for hard operation regimes are chosen starters which correspond to the current rating of the motor.

Documents corresponding to the product:
Standard EN 60947-1
EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC".



scheme **"Reverse"**

Reverse starter

5 YEAR WARRANTY *for industrial usage, 3 years warranty

The electromagnetic starters LT4 Dxx series are devices used for direct start, reverse start and protection of induction motors with short connected rotor. They are a combination of two contactors LT1 Dxx series supplied with two buttons "start" and one "stop" factory cabled. They provide the unwinding of the motor in one of the directions with possibility for pushing the button "stop" and giving command from the other "start" for changing the motor winding direction. The two contactors are mechanically blocked and do not allow simultaneous start in both winding directions. The starters are offered – closed type in metal boxes providing the corresponding IP code from dust and moisture (IP54) as at mounting there should be provided protection of the device from short circuit through breakers or disconnectors. The starters are offered with mounted thermal protection which can be substituted according to the motor power. The choice of a suitable protection prevents motor's operation at unusual temperature conditions and guarantees maximum constant operation, increases the effectiveness and prolongs the term of exploitation.
If necessary, at order the power supply operating voltage of the pneumatic starter can be changed.

Functions:
- switching on alternating current three phase motors in one winding direction, switching off and change of the winding direction at giving a signal
- does not allow secondary unwarranted switching on of the starter at transitory lowering of the voltage
- protects the motor from overload in the range of the corresponding thermal protection
- remarkable with high reliability of current characteristics

Technical data:
- Rated voltage of the controlling voltage: 400V AC; 50/60 Hz

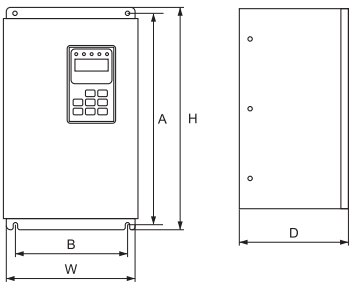
Note: In case you need different controlling coils voltage of the starters you can turn to our regional representatives.
- Rated operating voltage: 690V
- Rated operating current range: from 7 to 93 A AC
- insulation voltage: 690V
- Surge voltage wear resistance:≥6000V
- Joining terminal: screw terminal
- Little power consumption and small dimensions
- Connecting:
  - flexible or rigid conductors with or without cable terminal for joining to the consumer and section according to the motor power
  - three by three inlets/outlets supplied with orifices for the cables
- Possibility for operation at higher frequency
- IP code: IP 44
- Mounting:
  - mounting to a flat surface (wall) with bolts/screws
  - mounting position: vertical gradient – maximum± 5°
- The metal body is covered with corrosion-proof paint
- Ambient temperature: -10°C + 65°C
- Altitude: up to 2000m

Type designation (with a box)	Rated capacity (kW)				Overall dimensions (mm)			Rated current (A)	Coil voltage (V AC)	Packing/Box (pcs)	Catalogue number
	220V 230V	380V 400V	415V	440V	height	width	depth				
LT 4 - B - D25A	11.0	15.0	15.0	15.0	240	240	160	25	400	1 / 8	**43001**
LT 4 - B - D32A	15.0	18.5	18.5	18.5	240	240	160	32	400	1 / 4	**43002**
LT 4 - B - D40A	18.5	22.0	22.0	22.0	270	265	160	40	400	1 / 2	**43003**
LT 4 - B - D65A	30.0	55.0	55.0	55.0	270	265	160	65	400	1 / 4	**43004**
LT 4 - B - D95A	37.0	75.0	75.0	75.0	270	265	160	95	400	1 / 4	**43005**
LT 4 - B - D25A	11.0	15.0	15.0	15.0	240	240	160	25	230	1 / 4	**43006**
LT 4 - B - D32A	15.0	18.5	18.5	18.5	240	240	160	32	230	1 / 4	**43007**
LT 4 - B - D40A	18.5	22.0	22.0	22.0	270	265	160	40	230	1 / 4	**43008**
LT 4 - B - D65A	30.0	55.0	55.0	55.0	270	265	160	65	230	1 / 4	**43009**
LT 4 - B - D95A	37.0	75.0	75.0	75.0	270	265	160	95	230	1 / 4	**43010**

Type of sign
ELM1000- G -0150 T3 C

- lid type code: C=metal clips; B=plastic lid
- power supply code: T3=three-phase; S2= single phase
- motor power
- inverter type: G=constant momentum
- inverter model

Documents corresponding to the product:
Standard EN60898-1
EN 60947-2
The products are in accordance with the directives of EC "Low voltage directives (LVD) no 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC".



ELM 1000 frequency inverters

3 YEAR WARRANTY

Frequency inverters are designed to control three-phase induction motors with short-circuited rotor. They provide for the implementation of some control laws, thus becoming an indispensable part of the control systems for conveyors and packaging machines, pumps, air conditioning systems, etc. The ELM 1000 inverter provides the so-called no-sensor control, V/f control and impulse control while the output load can reach up to 150% within 60 seconds. It features easy definition of curves and easy parameters setting of inverter through the use of control panel buttons. The inverter can auto calibrate according to the motor power, i.e. if the inverter is connected to a motor with power different from that set by the inverter manufacturer, it automatically adjusts its programmable parameters to suit the motor parameters.

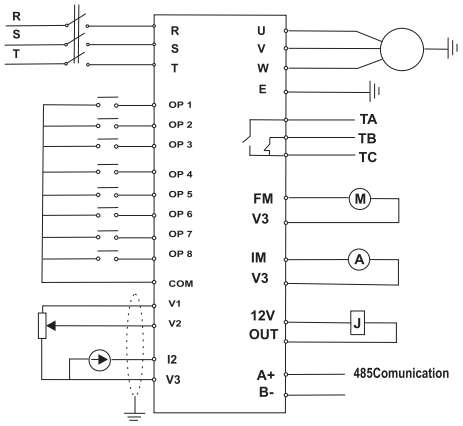
Functions:
- rotation speed increase – automatic and manual
- sliding compensation: from 0 to 20%
- no-sensor control of the motor
- adjustment of the V/F control curve – linear or quadratic
- energy saving through automatic optimization of the V/F curve
- PID control law implementation option
- omission of resonance frequencies
- JOG function
- 'counter' function
- automatic restart option in case of power supply failure
- fifteen speed degrees control option
- control choice from the control panel; external or COM terminal
- frequency control from the control panel, external potentiometer by current or by voltage
- auto-calibration in accordance with the switched motor
- incoming signals on clockwise or counter-clockwise rotation, multi-step control, restart, etc.
- outgoing discrete control signal 24V
- outgoing analogue control signal 0 – 10V
- DC brake in static mode
- dynamic breaking with external breaking resistor – used in inert electric motor load
- output voltage adjustment option
- activation of output safety functions option
- electronic motor protection

Technical features:
- Rated working voltage: 230/400V AC; 50 Hz
- Permissible working voltage deviation: ±10%
- Unbalance of phases: < 3%
- Frequency fluctuation: < 5%
- Output frequency: 0 – 400 Hz
- Output voltage: from 0 to Ubx max
- Overload capacity:
  - constant: up to 110%
  - momentary: up to 150%
- Precision of output frequency adjustment: 0.1%
- Type of connection:
  - the connection of the inverter to the power supply should always be done through a circuit breaker of the MCB or MCCB type
  - connection of consumer to power terminals: through conductors suitable for the power
  - connection of control circuits: flexible conductor up to 1.5 mm^2

Note: It is not recommendable to mount contactors or other commutation devices between the frequency inverter and the motor, except as described in the product passport.
- Mounting:
  - mounting to a flat surface by means of bolts
  - mounting position – vertical gradient maximum ± 5°

Note: When more than one inverter is mounted in a board, it is recommendable to mount them side by side and when this is not possible, the appropriate cooling conditions should be provided.
- Plastic: UV-rays resistant and fire resistant (self-extinguishing material)
- Ambient temperature: -10° to 65° C
- Altitude : up to 2000 m
- Function enhancement option: through the inclusion of additional modules

Type	Overall dimensions (mm)					
	H	W	A	B	D	d
ELM1000-G0007S2B	150	105	139	94	120	Ø4
ELM1000-G0015S2B	170	125	160	114	140	Ø5
ELM1000-G0022S2B	170	125	160	114	140	Ø5
ELM1000-G0007T3B	170	125	160	114	140	Ø5
ELM1000-G0015T3B	170	125	160	114	140	Ø5
ELM1000-G0022T3B	170	125	160	114	140	Ø5
ELM1000-G0037T3B	250	162	233	145	150	Ø6
ELM1000-G0040T3B	250	162	233	145	150	Ø6
ELM1000-G0055T3B	300	200	282	182	160	Ø6
ELM1000-G0075T3B	300	200	282	182	160	Ø6
ELM1000-G0110T3C	340	225	322	160	220	Ø6
ELM1000-G0150T3C	380	230	362	186	225	Ø6



Type	Input voltage (V)	Maximum output power (kW)	Maximum current output (A)	Packing/Box (pcs)	Catalogue number
ELM1000-G0007S2B	230	0.75	4.5	1 / 4	**423107M**
ELM1000-G0015S2B	230	1.5	7	1 / 4	**423115M**
ELM1000-G0022S2B	230	2.2	9	1 / 4	**423122M**
ELM1000-G0007T3B	400	0.75	2	1 / 4	**423307M**
ELM1000-G0015T3B	400	1.5	4	1 / 4	**423315M**
ELM1000-G0022T3B	400	2.2	6.5	1 / 4	**423322M**
ELM1000-G0037T3B	400	3.7	8	1 / 1	**423337M**
ELM1000-G0040T3B	400	4.0	9	1 / 1	**423340M**
ELM1000-G0055T3B	400	5.5	12	1 / 1	**423355M**
ELM1000-G0075T3B	400	7.5	17	1 / 1	**423375M**
ELM1000-G0110T3C	400	11	23	1 / 1	**423391M**
ELM1000-G0150T3C	400	15	32	1 / 1	**423392M**

Documents corresponding to the product:
Standard EN60947-4-2
EN 60947-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no 2006/95/EC" and "Electromagnetic Compatibility Directives (EMC) no. 2004/108/EC".

Soft starter ELM 2500

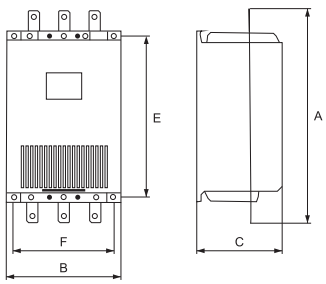
3 YEAR WARRANTY

Soft starters are designed to control the start of three-phase induction motors with short-circuited rotor. A number of motor control issues are avoided through them, and namely: prolonged start moments, auto-ignition of motor, there is no need of stardelta switching, auto-transformer switching, resistant switching, etc. The ELM 2500 soft starter pertains to the AC53b type of starters as per the standard requirements and it provides rotation of motor and once the operation mode is set, a shunt contactor of the LT 1 D/F series is switched to control motor operation as the soft starter is not designed to control motors in a set mode. Under a stop command in accordance with the selected control scheme, the soft starter can or can not be included in shutting the motor down.

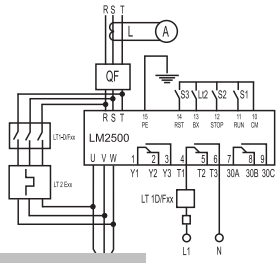
Functions:
- System functions
  - over-voltage protection – motor will switch off when power supply exceeds the preset limits
  - overload protection – protects the motor from overloading
  - phase loss protection
  - temperature overload protection
- Control functions
  - output faults
  - motor faults diagnostics
  - keyboard or outward control
  - delayed start option
  - faults memory

Technical features:
- Rated working voltage: 230/400V AC; 50 Hz
- Permissible working voltage deviation: ±10%
- Unbalance of phases: < 3%
- Frequency fluctuation: < 5%
- Obligatory bypass contactor installation
- Mounting :
  - mounting to a flat surface through bolts
  - mounting position – vertical gradient maximum ± 5°

Note: When more than one soft starter is mounted in a board, it is recommendable to mount them side by side and when this is not possible, the appropriate cooling conditions should be provided.
- Plastic: UV-rays resistant and fire resistant (self-extinguishing material)
- Altitude : up to 2000 m



Type	Overall dimensions (mm)					
	A	B	C	E	F	d
EL M25015	250	153	162	219	140	Ø6
EL M25022	250	153	162	219	140	Ø6
EL M25037	250	153	162	219	140	Ø6
EL M25045	250	153	162	219	140	Ø6
EL M25055	250	153	162	219	140	Ø6
EL M25075	510	260	194	389	232	Ø8



Type	Power of motor (kW)	Rated current (A)	Type of bypass contactor	Section of power supply conductors	Packing/Box (pcs)	Catalogue number
EL M25015	15	30	LT 1-D 50	10	1 / 1	**42225015**
EL M25022	22	45	LT 1-D 50	10	1 / 1	**42225022**
EL M25037	37	76	LT 1-D 80	16	1 / 1	**42225037**
EL M25045	45	90	LT 1-D 95	25	1 / 1	**42225045**
EL M25055	55	110	LT 1-F 115	25	1 / 1	**42225055**
EL M25075	75	150	LT 1-F 150	35	1 / 1	**42225075**