

Motor starters

Integrated starters - Control and Power Switching (CPS)
integral 18 contactor breakers and reversing contactor
breakers for the control and protection of motors
Products for customer assembly



LD1-LB030●

3-pole contactor breakers without protection module (1)

Standard power ratings of 3-phase motors in category AC-43					Operational current A	Breaking capacity (Iq) for Ue 415 V kA	Basic reference (3) Complete with code indicating control circuit voltage (2)	Weight kg
220 V kW	400 V kW	440 V kW	480 V kW	600 V kW				

Without control test function, with padlocking facility

Black knob

4	9	9	9	15	18	50	LD1-LB030●	0.650
---	---	---	---	----	----	----	------------	-------

3-pole reversing contactor breakers without protection module (1)

Without control test function, with padlocking facility

Black knob (VDE 0113)

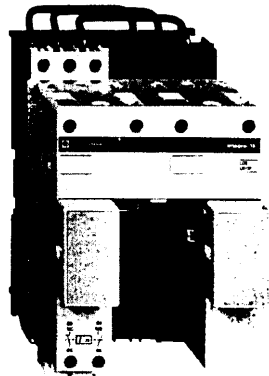
4	9	9	9	15	18	50	LD5-LB130●	1.600
---	---	---	---	----	----	----	------------	-------

Thermal-magnetic protection modules (compensated and differential for normal starting motors) (5)

Standard power ratings of 3-phase motors 50/60 Hz in category AC-43					Thermal setting range (I _{rh} min to I _{rh} max) A	Reference	Weight kg
220 V kW	400 V kW	440 V kW	480 V kW	600 V kW			

Fixed magnetic protection, set at 15 I_{rh} max

★	★	★	★	★	0.1...0.16	LB1-LB03P01	0.250
★	0.06	★	★	★	0.16...0.25	LB1-LB03P02	0.250
0.06	0.09	★	★	★	0.25...0.4	LB1-LB03P03	0.250
★	0.12 0.18	★	★	0.37	0.4...0.63	LB1-LB03P04	0.250
0.09 0.12	0.25	0.37	0.37	0.55	0.63...1	LB1-LB03P05	0.250
0.18 0.25	0.37 0.55	0.55	0.75	1.1	1...1.6	LB1-LB03P06	0.250
0.37	0.75	1.1	1.1	1.5	1.6...2.5	LB1-LB03P07	0.250
0.55 0.75	1.1 1.5	1.5	2.2	3	2.5...4	LB1-LB03P08	0.250
1.1	2.2	2.2	3.7	4	4...6	LB1-LB03P10	0.250



LD5-LB130●

Selection

according to utilisation category
and required electrical durability

Motor starters

Integrated starters - Control and Power Switching (CPS)
integral 18, 32 and 63 contactor breakers and reversing
contactor breakers

Selection for a temperature $\theta = 40\text{ }^\circ\text{C}$

Rated operational voltage	V	220/240	400/415	440	480/525	600/690
Rated operational currents (according to the rated operational voltage)						
integral 18	A	18	18	18	18	18
integral 32	A	32	32	32	32	32
integral 63	A	63	63	63	63	63
Rated operational powers (for standard motors)						
integral 18	kW	4	9	9	11	15
integral 32	kW	7.5	15	15	18.5	25
integral 63	kW	15	33	33	37	55

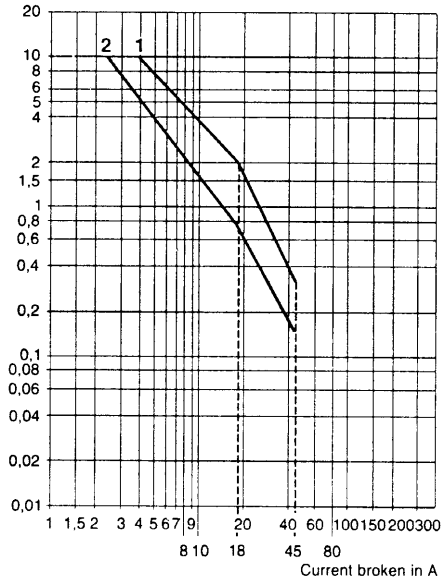
Electrical durability

Control and protection of motors at $U_e = 415\text{ V}$:

- in utilisation categories AC-2, AC-3 conforming to IEC/EN 60947-4-1,
- in utilisation categories AC-42, AC-43 conforming to IEC/EN 60947-6-2.

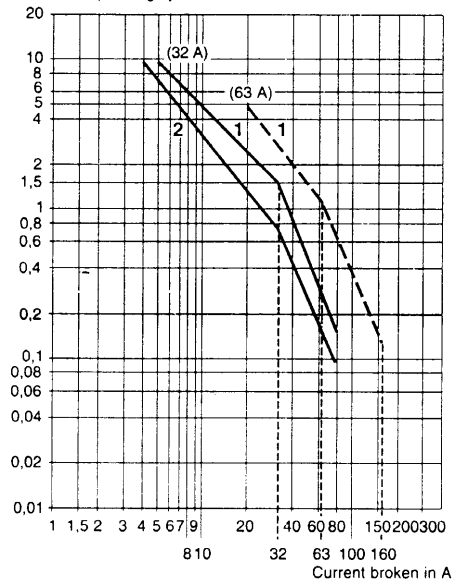
integral 18

Millions of operating cycles

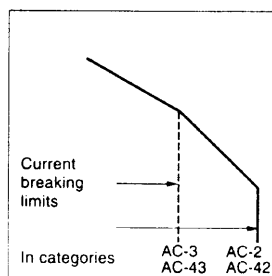


integral 32 and 63

Millions of operating cycles



- 1 Not having previously broken a short-circuit current
- 2 Having broken a short-circuit current 10 times at 30 Ie (most common values of short-circuit current during operation)



Selection

according to utilisation category
and required electrical durability

Motor starters

Integrated starters - Control and Power Switching (CPS)
integral 18, 32 and 63 contactor breakers and reversing
contactor breakers

a.c. supply, utilisation categories AC-1, AC-3, AC-41, AC-43

Rated operational currents (according to ambient temperature)

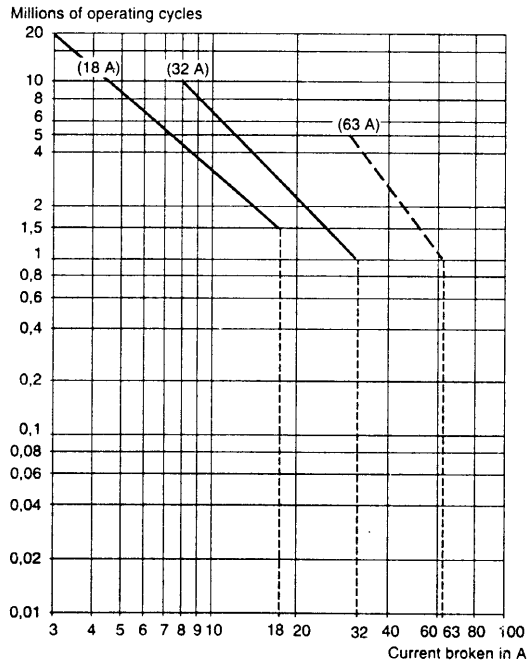
With cable c.s.a.		θ 40 °C	θ 55 °C	θ 70 °C
integral 18	4 mm ² A	18	16	14
integral 32	6 mm ² A	32	28	25
integral 63	16 mm ² A	63	55	50

a.c. supply, utilisation categories AC-1, AC-41

Maximum operating rates in operating cycles/hour

	Operating cycles/h	On-load factor 85 %		On-load factor 25 %
		Operation at I _e max	Operation at 0.5 I _e	Operation at I _e max
integral 18	Operating cycles/h	600	1200	900
integral 32	Operating cycles/h	1200	2400	1800
integral 63	Operating cycles/h	1200	2400	1800

Electrical durability U_e 415 V

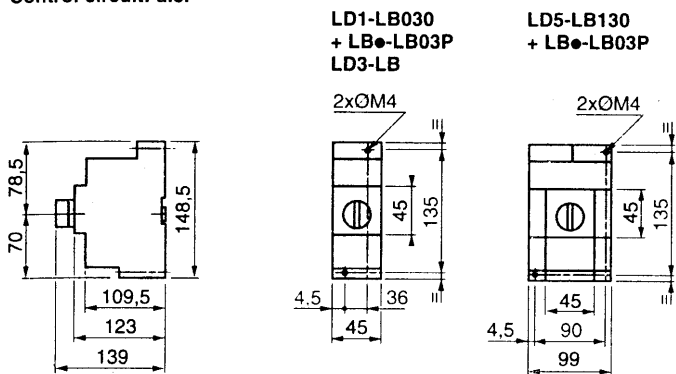


Note: for use in category AC-44, please call our Customer information centre on 0870 608 8 608.

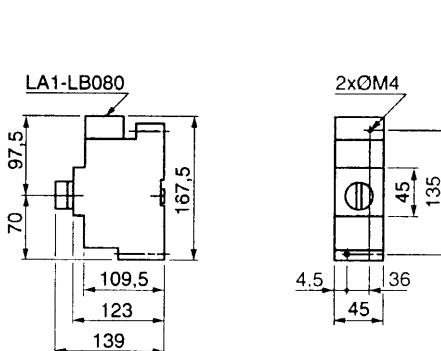
Motor starters

Integrated starters - Control and Power Switching (CPS)
integral 18, 32 and 63 contactor breakers and reversing
contactor breakers

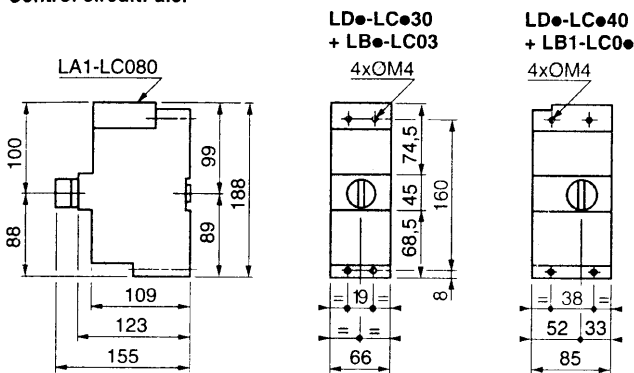
Contactor breakers and reversing contactor breakers integral 18
Control circuit: a.c.



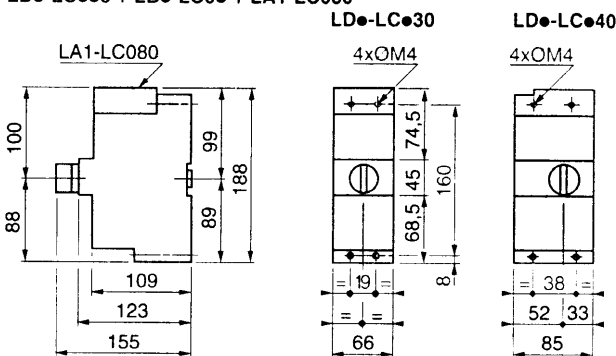
Control circuit: d.c.
LD-LB030 + LB-LB03P + LA1-LB080



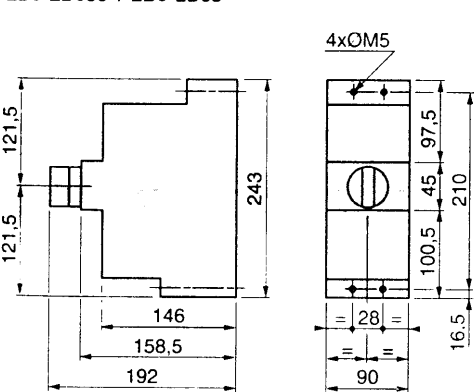
Contactor breakers integral 32
Control circuit: a.c.



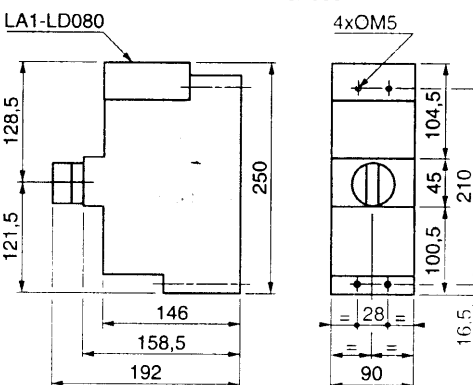
Control circuit: d.c.
LD-LC030 + LB-LC030 + LA1-LC080



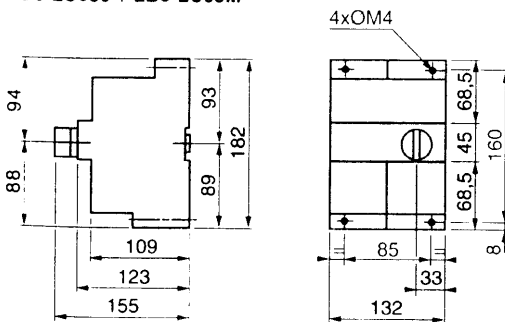
Contactor breakers integral 63
Control circuit: a.c.



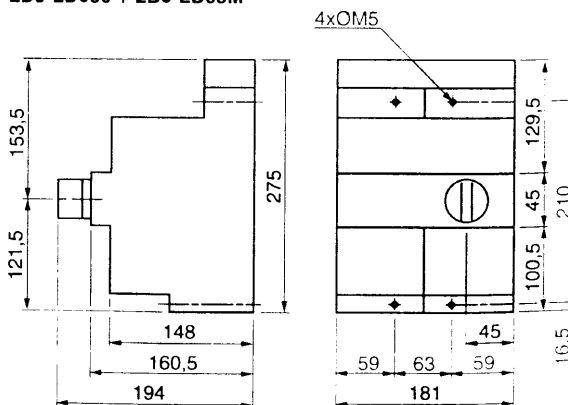
Control circuit: d.c.
LD-LD030 + LB-LD030 + LA1-LD080



Contactor breakers and reversing contactor breakers integral 32
LD5-LC030 + LB-LC03M



Contactor breakers and reversing contactor breakers integral 63
LD5-LD030 + LB-LD03M

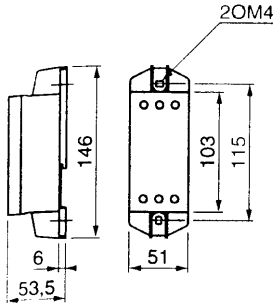


Dimensions, mounting

Motor starters

Integrated starters - Control and Power Switching (CPS)
integral 18, 32 and 63 contactor breakers and reversing
contactor breakers

Current limiter LA9-LB920



Add-on blocks

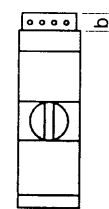
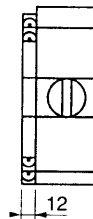
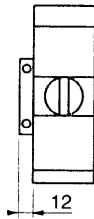
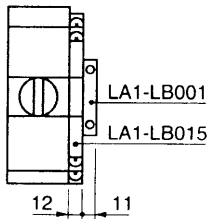
For mounting on contactor breakers integral 18

LA1-LB015
LA1-LB001

LA1-LB031
LA1-LB0311

LA1-LB034
LA1-LB0341

LA1-LB080BD
LA4-D



LA1-LB080BD	b = 19
LA4-DA, DE, DF, DT	b = 12
LA4-DL, DM, DR, DW	b = 19

Add-on blocks

For mounting on contactor breakers integral 32 and 63

LA1-LC012
LA1-LC001

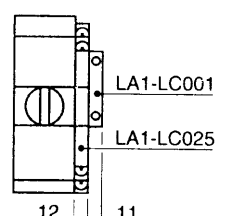
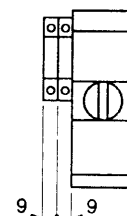
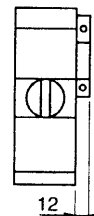
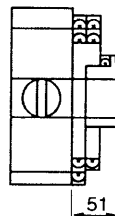
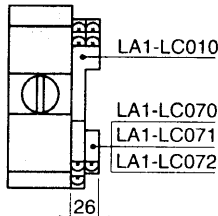
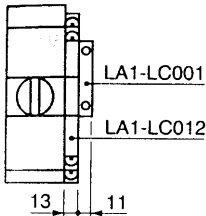
LA1-LC010
LA1-LC07●

LA1-LC052

LA1-LC020

LA1-LC030
(1 or 2)

LA1-LC025
LA1-LC001



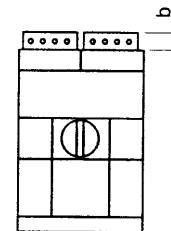
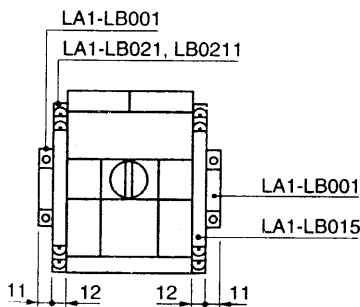
Add-on blocks

For mounting on contactor breakers and reversing contactor breakers integral 18

LA1-LB015

LA1-LB021, LB0211, LA1-LB001

LA1-LB080BD
LA4-D



LA1-LB080BD	b = 19
LA4-DA, DE, DF, DT	b = 12
LA4-DL, DM, DR, DW	b = 19

Add-on blocks

For mounting on contactor breakers and reversing contactor breakers integral 32 and 63

LA1-LC021, LC025
LA1-LC001

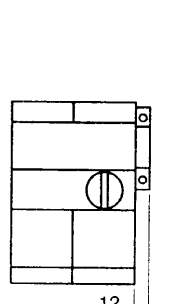
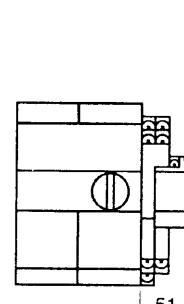
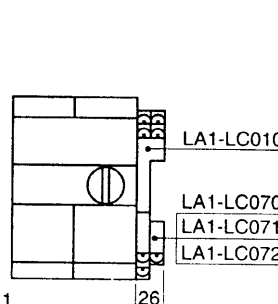
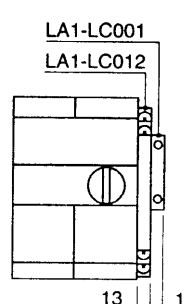
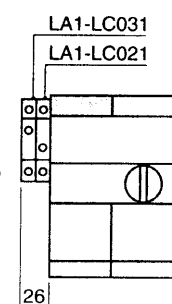
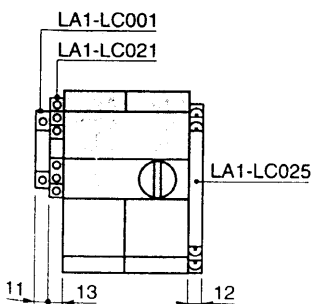
LA1-LC031

LA1-LC012
LA1-LC001

LA1-LC010
LA1-LC07●

LA1-LC052

LA1-LC020



General:
pages 4/2 to 4/7

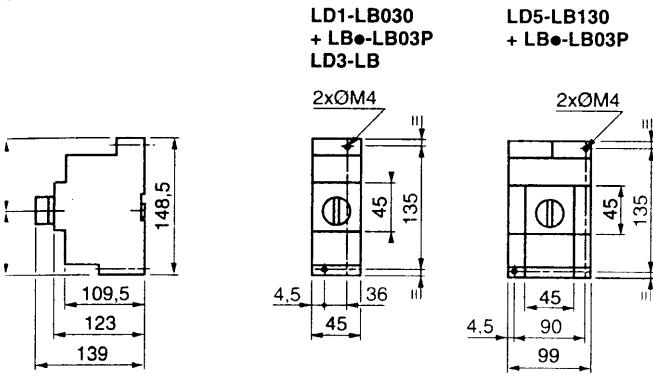
References:
pages 4/46 to 4/79

Schemes:
pages 4/88 to 4/91

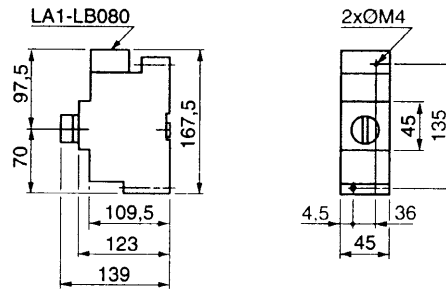
Motor starters

Integrated starters - Control and Power Switching (CPS)
integral 18, 32 and 63 contactor breakers and reversing
contactor breakers

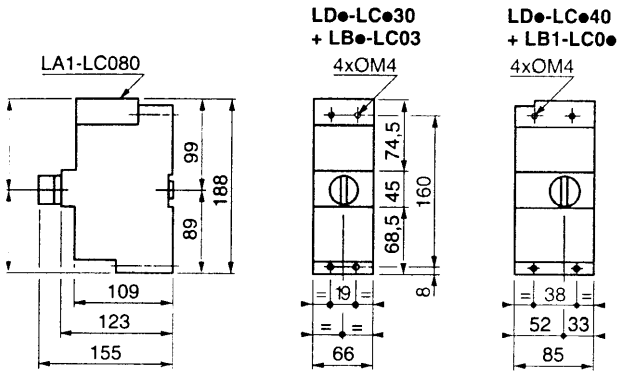
Contactor breakers and reversing contactor breakers integral 18
Control circuit: a.c.



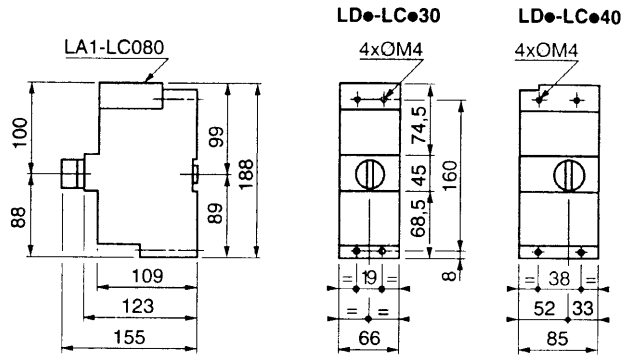
Control circuit: d.c.
LD-LB030 + LB-LB03P + LA1-LB080



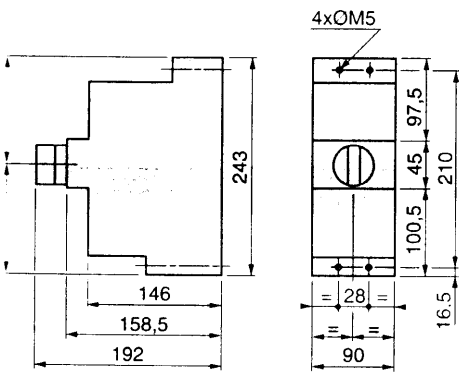
Contactor breakers integral 32
Control circuit: a.c.



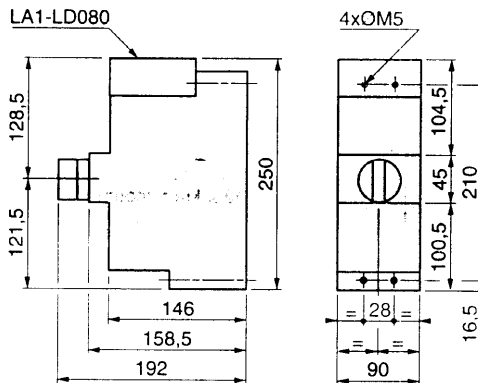
Control circuit: d.c.
LD-LC030 + LB-LC03 + LA1-LC080



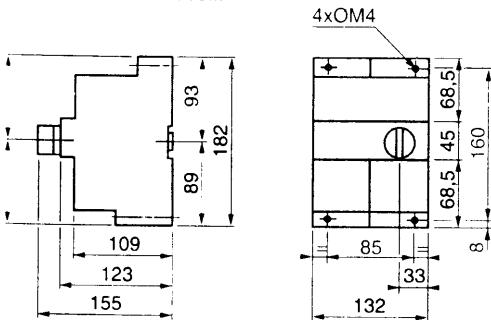
Contactor breakers integral 63
Control circuit: a.c.
LD-LD030 + LB-LD03



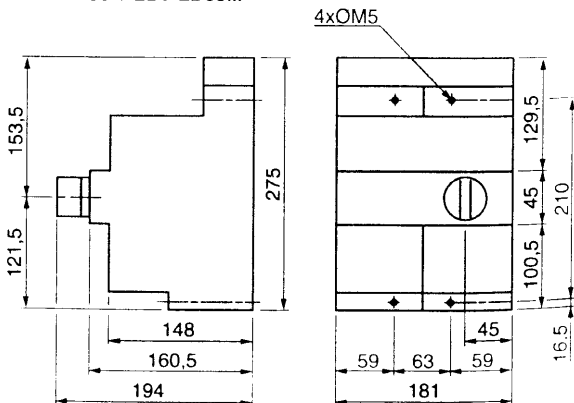
Control circuit: d.c.
LD-LD030 + LB-LD03 + LA1-LD080



Contactor breakers and reversing contactor breakers integral 32
LD5-LC030 + LB-LC03M



Contactor breakers and reversing contactor breakers integral 63
LD5-LD030 + LB-LD03M



Motor starters

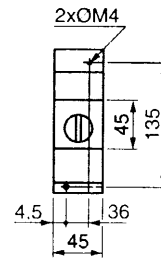
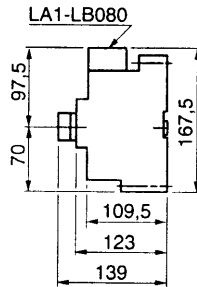
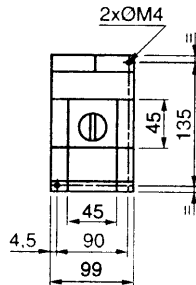
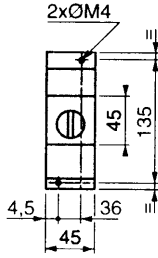
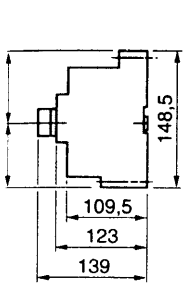
Integrated starters - Control and Power Switching (CPS)
integral 18, 32 and 63 contactor breakers and reversing
contactor breakers

contactor breakers and reversing contactor breakers integral 18
control circuit: a.c.

LD1-LB030
+ LB•-LB03P
LD3-LB

LD5-LB130
+ LB•-LB03P

Control circuit: d.c.
LD•-LB•30 + LB•-LB03P + LA1-LB080

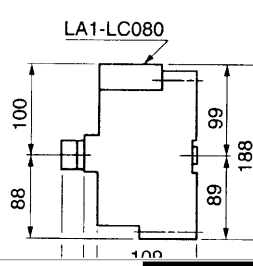
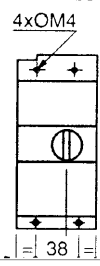
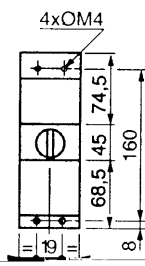
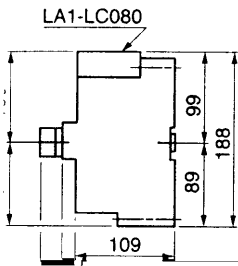


contactor breakers integral 32
control circuit: a.c.

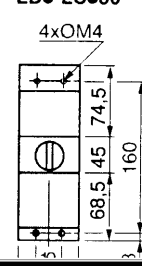
LD•-LC•30
+ LB•-LC03

LD•-LC•40
+ LB1-LC0•

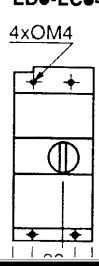
Control circuit: d.c.
LD•-LC••0 + LB•-LC0• + LA1-LC080



LD•-LC•30

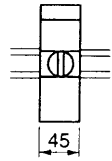
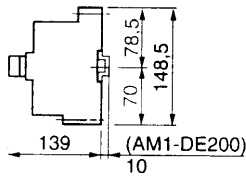


LD•-LC•40

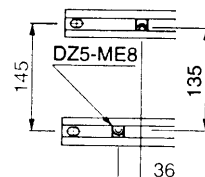
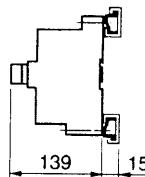


Integrated starters - Control and Power Switching (CPS)
integral 18, 32 and 63 contactor breakers and reversing
contactor breakers

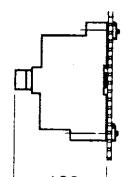
integral 18
On 35 mm \perp rail



On 32 mm \perp rails, at 145 mm centres

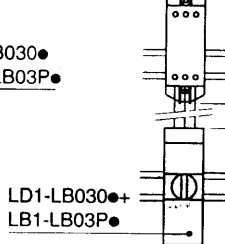
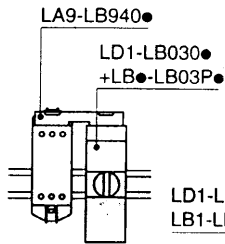
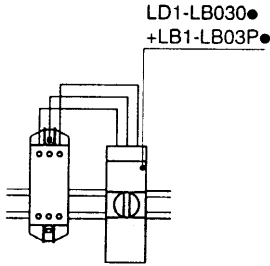


On pre-slotted mounting

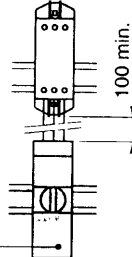


AF1-EA4

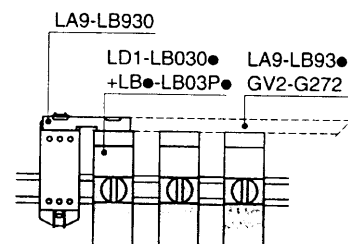
integral 18 with current limiter LA9-LB920
LH side



Upstream

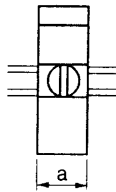
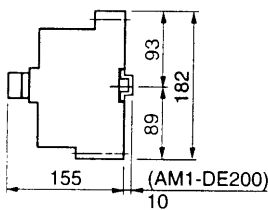


Several integral 18 units with current limiter LA9-LB920

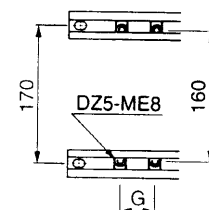
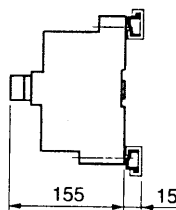


4

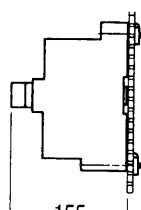
integral 32
On 35 mm \perp rail



On 32 mm \perp rails, at 170 mm centres



On pre-slotted mounting pla



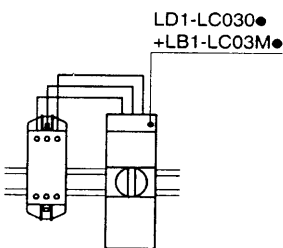
AF1-EA4

	a
LD1-LC30	66
LD1-LC40	85
LD4-LC30	66
LD4-LC40	85
LD5-LC30	132

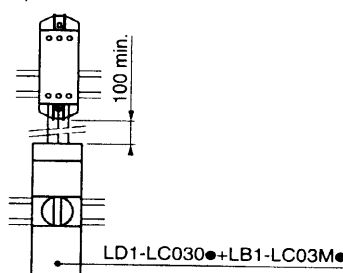
	G
LD1-LC30	19
LD1-LC40	38
LD4-LC30	19
LD4-LC40	38
LD5-LC30	85

LD1-LC30
LD1-LC40
LD4-LC30
LD4-LC40
LD5-LC30

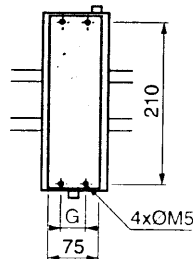
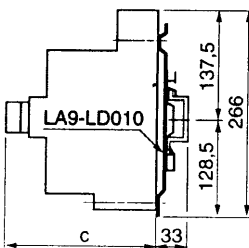
integral 32 with current limiter LA9-LB920
LH side



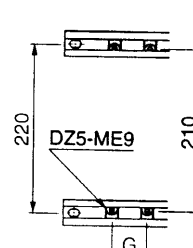
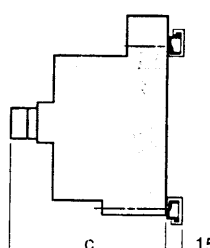
Upstream



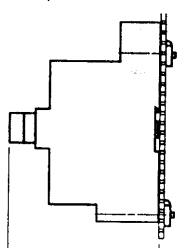
integral 63
On 75 mm \perp rail, with mounting plate LA9-LD010



On 32 mm \perp rails, at 220 mm centres



On pre-slotted mounting pla



AF1-EA4

	a	b	c	G
LD1	266	137.5	192	28
LD4	266	137.5	192	28
LD5	282	153.5	194	63

	c	G
LD1	192	28
LD4	192	28
LD5	194	63

	c
LD1	192
LD4	192
LD5	194

General:
pages 4/2 to 4/7

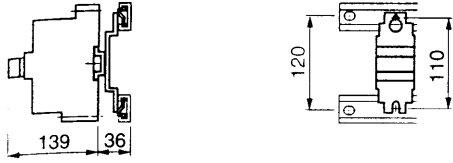
References:
pages 4/46 to 4/79

Schemes:
pages 4/88 to 4/91

Integrated starters - Control and Power Switching (CPS)
integral 18, 32 and 63 contactor breakers and reversing
contactor breakers

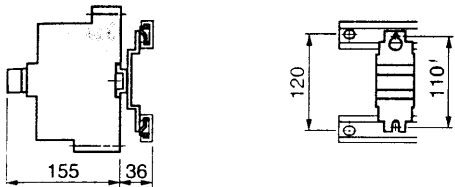
integral 18

With mounting plate LA9-LC010
On 32 mm \perp rails, at 120 mm centres

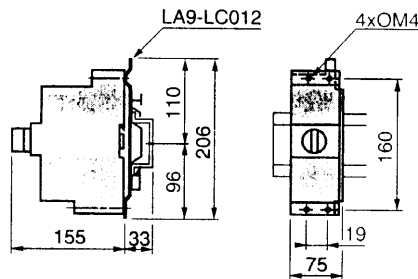


integral 32

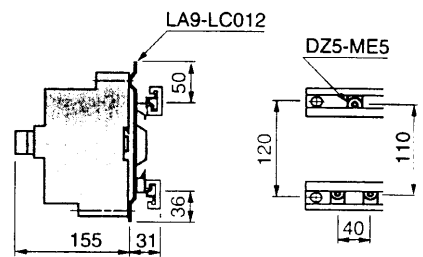
With mounting plate LA9-LC010
On 32 mm \perp rails, at 120 mm centres



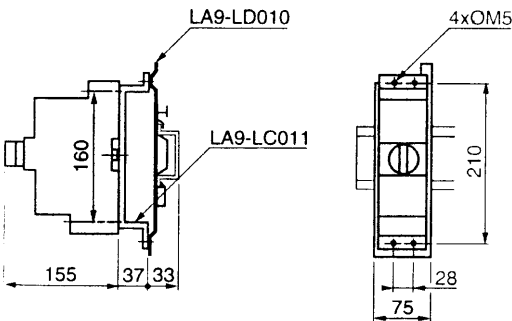
With mounting plate LA9-LC012
On 75 mm \perp rail



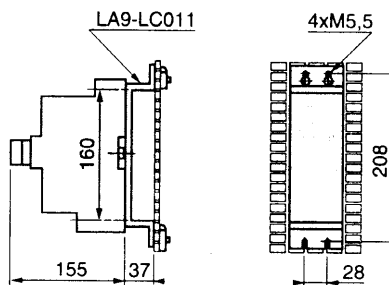
With mounting plate LA9-LC012
On 32 mm \perp rails, at 120 mm centres



With height compensation plate LA9-LC011 (1)
With mounting plate LA9-LD010
On 75 mm \perp rail



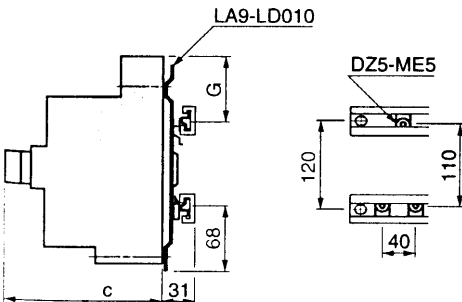
On pre-slotted mounting plate AM1-P



(1) For raising the front face of the integral 32 to the same height as that of the integral 63.

integral 63

With mounting plate LA9-LD010
On 32 mm \perp rails, at 120 mm centres



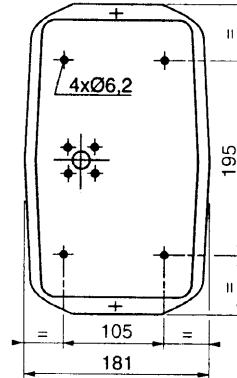
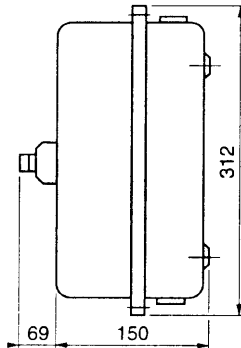
	c	G
LD1	192	78
LD4	192	78
LD5	194	94

Dimensions

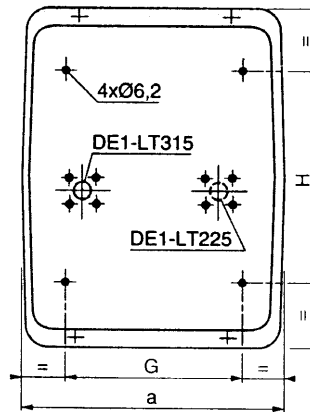
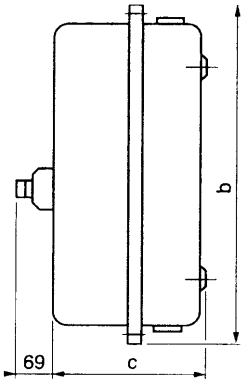
Motor starters

Integrated starters - Control and Power Switching (C integral 18, 32 and 63 contactor breakers and revers contactor breakers Enclosures

Metal enclosures - IP 54 degree of protection
DE1-LT215, LT615



DE1-LT225, LT315



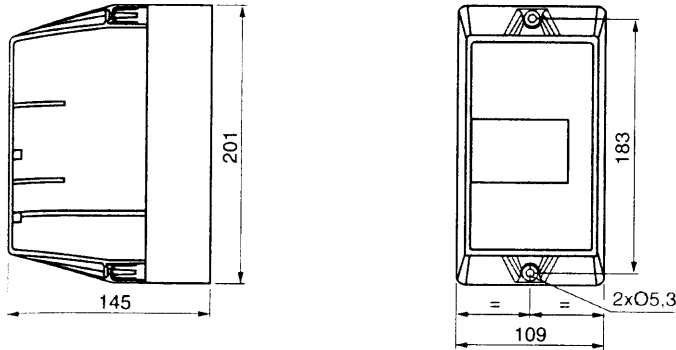
4

DE1-	a	b	c	G	H
LT225	257	307	165	165	165
LT315	287	367	190	192	225

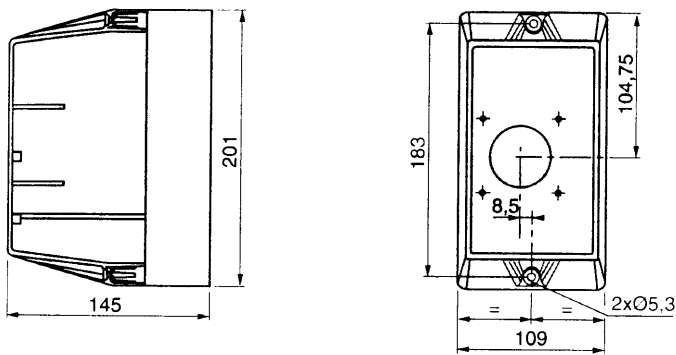
Number of blanked-off cable entries for addition of cable glands

DE1-	At		cable Ø		For cable gland	
	top	bottom	min	max	N°	Type
LT215	2	1	10	12	13	CM12
	1	2	14	18	21	CM18
LT225	1	2	10	12	13	CM12
	1	2	14	18	21	CM18
LT315	1	2	10	12	13	CM12
	1	2	24	30	36	CM30
LT615	2	1	10	12	13	CM12
	1	2	14	18	21	CM18

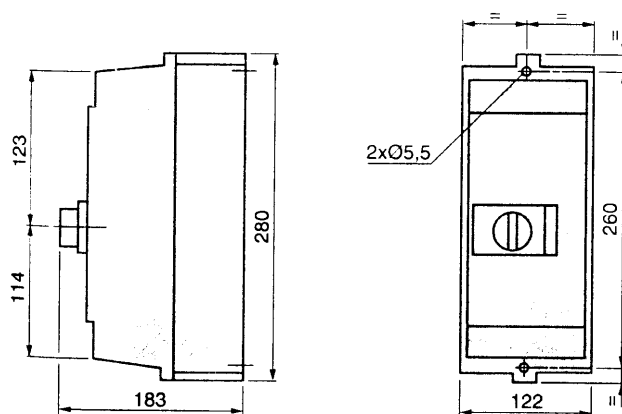
**Insulated enclosures
DE1-LB001**



DE1-LB005

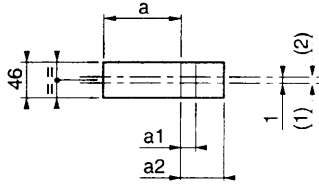
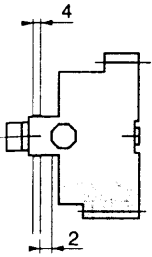


DE1-LC001

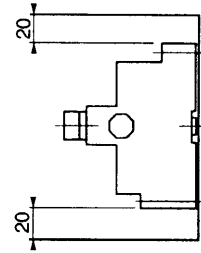


Integrated starters - Control and Power Switching (CPS)
integral 18, 32 and 63 contactor breakers and reversing
contactor breakers

integral 18 contactor breakers and reversing contactor breakers
Flush mounting



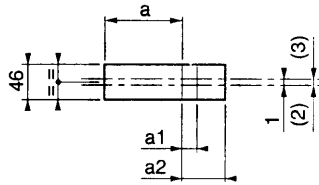
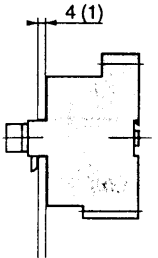
Safety clearance



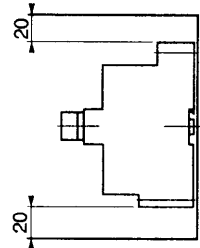
	a	a1	a2
LD1-LB030	46	-	-
LD5-LB130	100	-	-
LA1-LB0●●	-	13.5	-
2 x LA1-LB0●●	-	-	27

(1) Centre of operating knob
(2) Fixing centre

integral 32 contactor breakers and reversing contactor breakers
Flush mounting



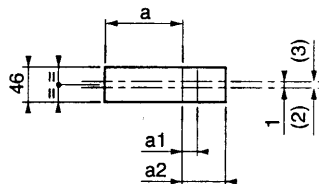
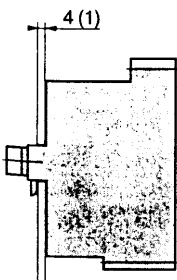
Safety clearance



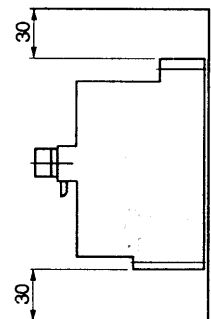
	a	a1	a2
LD1-LC030	66	-	-
LD4-LC●30	66	-	-
LD1-LC040	85	-	-
LD4-LC●40	85	-	-
LD5-LC●30	122	-	-
LA1-LC010	-	13	-
LA1-LC012	-	13	-
LA1-LC010 + LA1-LC052●	-	-	51
LA1-LC012 + LA1-LC052●	-	-	51

(1) Maximum door thickness for interlocking by LD4 and LD5
(2) Centre of operating knob
(3) Fixing centre

integral 63 contactor breakers and reversing contactor breakers
Flush mounting



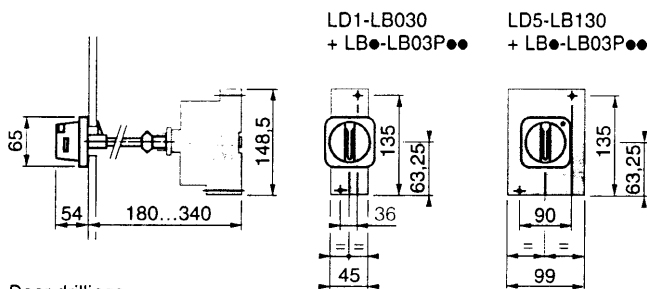
Safety clearance



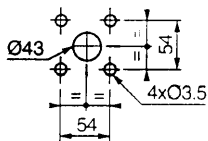
	a	a1	a2
LD1-LD030	90	-	-
LD4-LD●30	90	-	-
LD5-LD●30	181	-	-
LA1-LC010	-	13	-
LA1-LC012	-	13	-
LA1-LC010 + LA1-LC052●	-	-	51
LA1-LC012 + LA1-LC052●	-	-	51

(1) Maximum door thickness for interlocking by LD4 and LD5
(2) Centre of operating knob
(3) Fixing centre

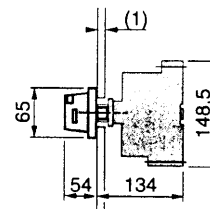
integral 18
Adjustable door interlock mechanism LA9-LB33●
For mounting on LD1-LB030 + LB●-LB03P●●
LD5-LB130 + LB●-LB03P●●



Door drillings

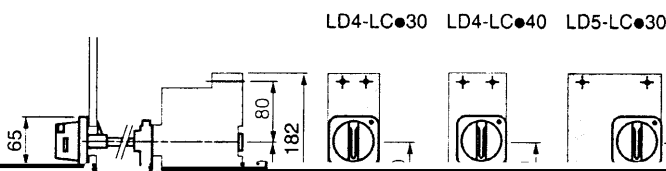


Non-adjustable door interlock mechanism LA9-LB32●
For mounting on LD1-LB030 + LB●-LB03P●●
LD5-LB130 + LB●-LB03P●●

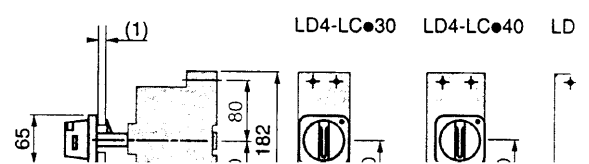


(1) Thickness: 5 mm max

integral 32
Adjustable door interlock mechanism LA9-LC33● and LA9-LC53●
For mounting on LD4-LC●30 and LC●40, LD5-LC●30



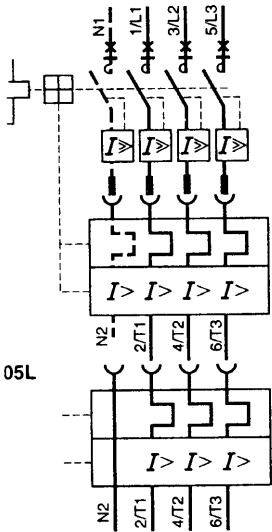
Non-adjustable door interlock mechanism LA9-LC32● and L
For mounting on LD4-LC●30 and LC●40, LD5-LC●30



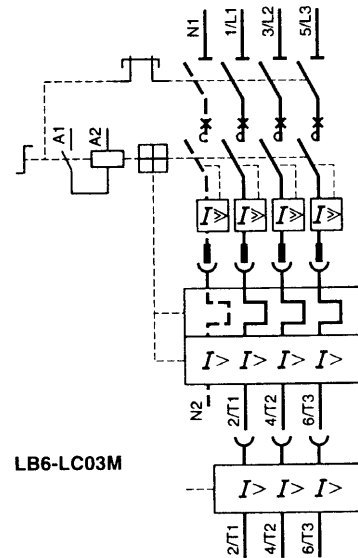
Motor starters

Integrated starters - Control and Power Switching (CPS)
integral 18, 32 and 63 contactor breakers and reversing
contactor breakers

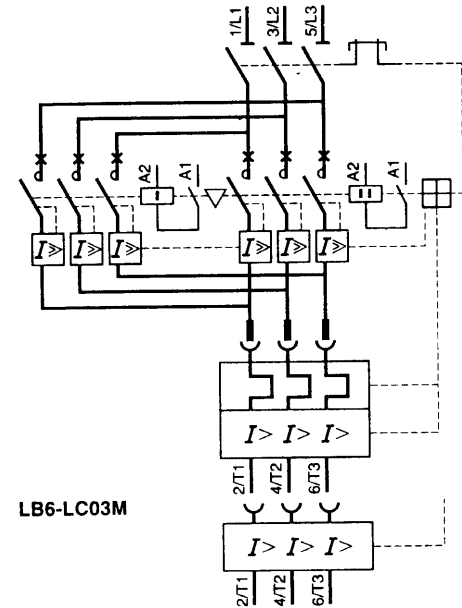
Contactor breakers integral 32
with protection module LB●
●0 + LB1-LC0●●



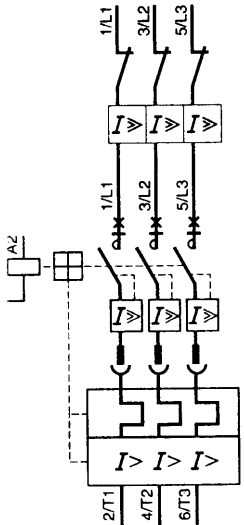
LD4-LC●●0 + LB1-LC0●●



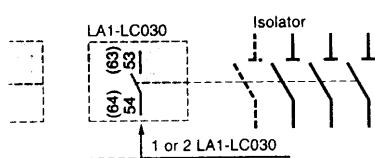
Reversing contactor breakers integral 32
with protection module LB●
LD5-LC●30 + LB1-LC03M



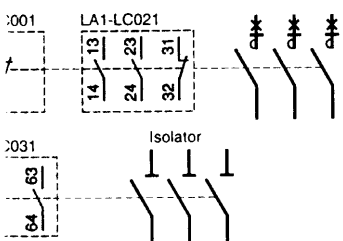
Contactor breaker with current limiter LA9-LB920 + Contactor breakers integral 32 with protection module LB●
●30 + LB1-LC03M●●



Terminal blocks
for contactor breakers LD4
mounted on LH side

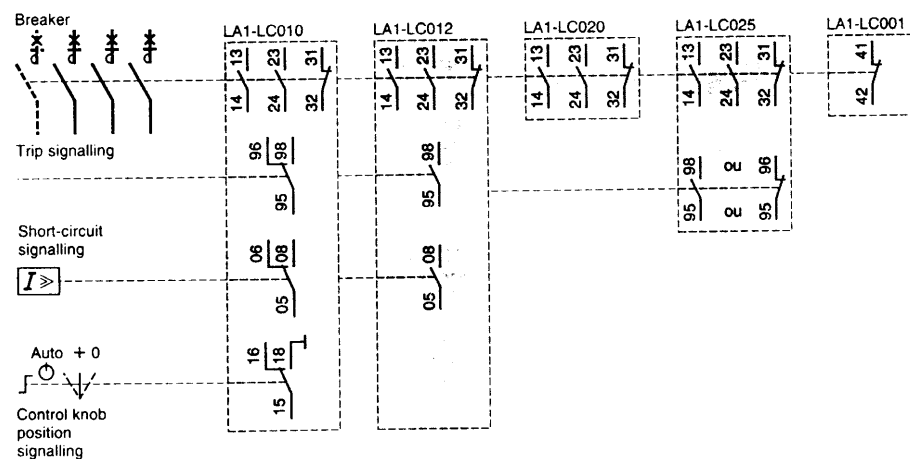


Terminal blocks
for reversing contactor breakers LD5
mounted on LH side



Add-on blocks

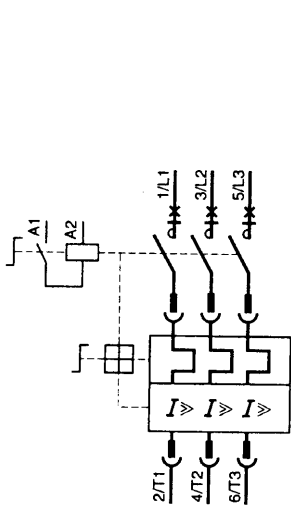
For contactor breakers LD1 or LD4 and reversing contactor breakers LD5
Mounted on RH side



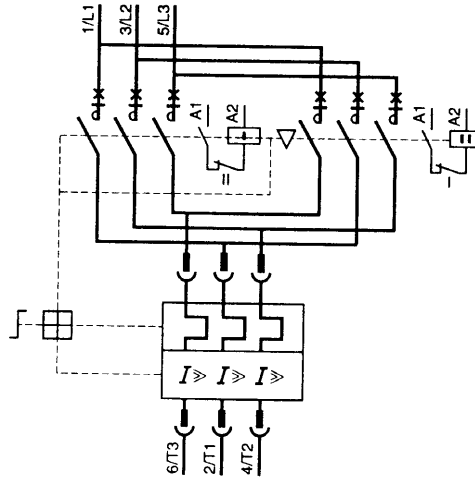
Motor starters

Integrated starters - Control and Power Switching (CPS) integral 18, 32 and 63 contactor breakers and reversing contactor breakers

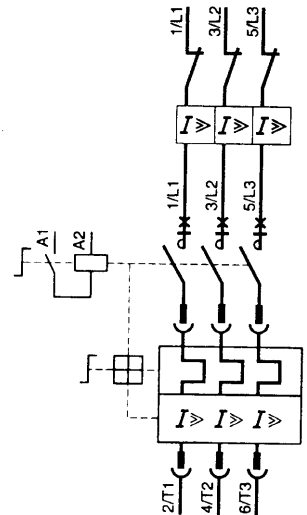
Contactor breakers integral 18 with protection module LB● LD1-LB030 + LB1-LB03P



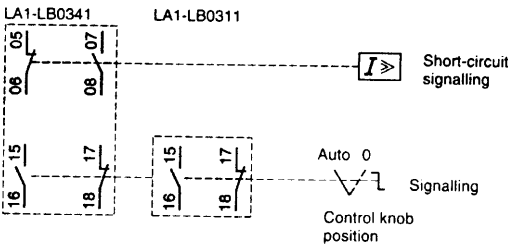
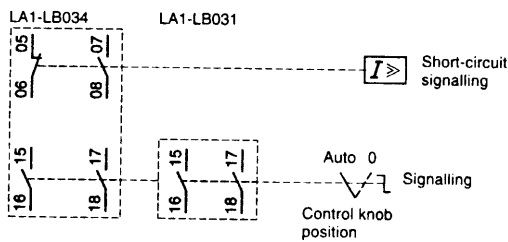
Reversing contactor breakers integral 18 with protection module LB● LD5-LB130 + LB1-LB03P



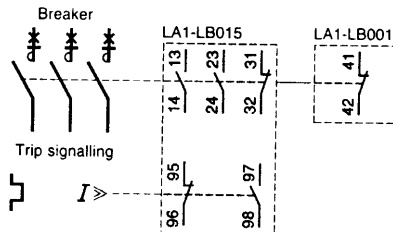
Current limiter LA9-LB920 + contactor breakers integral 18 with protection module LB● LD1-LB030 + LB1-LB03P



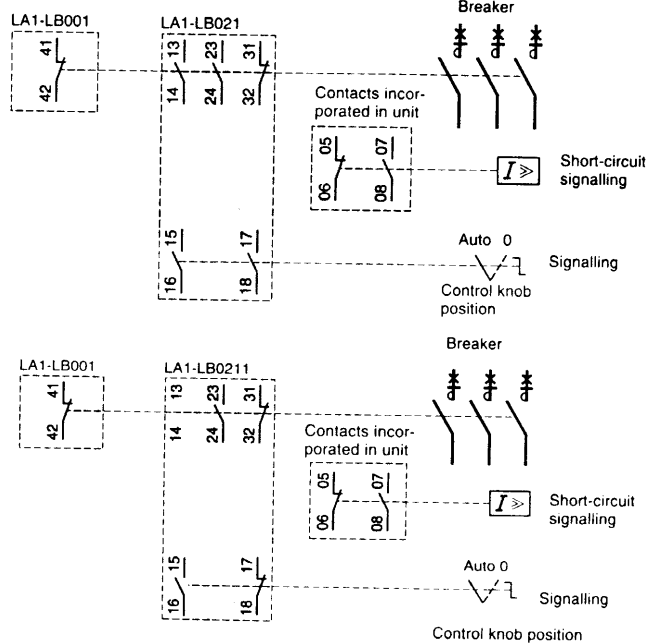
Add-on blocks For contactor breakers LD1 Mounted on LH side



For contactor breakers LD1 and reversing contactor breakers LD5 Mounted on RH side



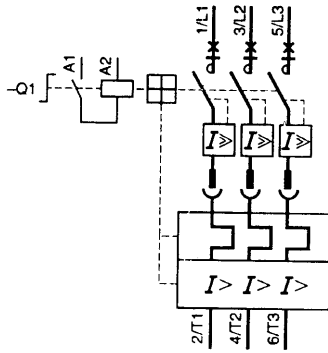
For reversing contactor breakers LD5 Mounted on LH side



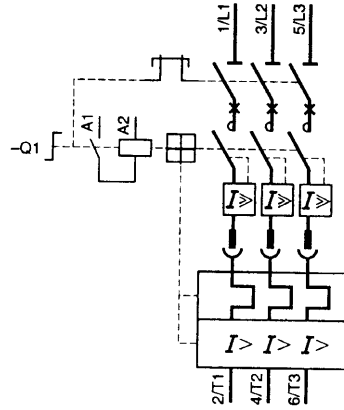
Motor starters

Integrated starters - Control and Power Switching (CPS) integral 18, 32 and 63 contactor breakers and reversing contactor breakers

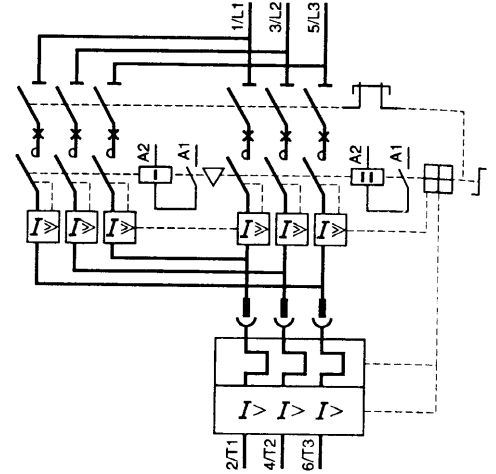
Contactor breakers integral 63 with protection module LB●
LD1-LD030 + LB1-LD03●



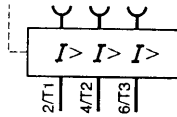
LD4-LD●30 + LB1-LD03●



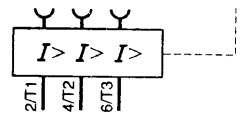
Reversing contactor breakers integral 63 with protection module LB●
LD5-LD●30 + LB1-LD03M or LD03P



LB6-LD03M

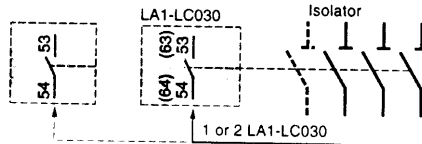


LB6-LD03M

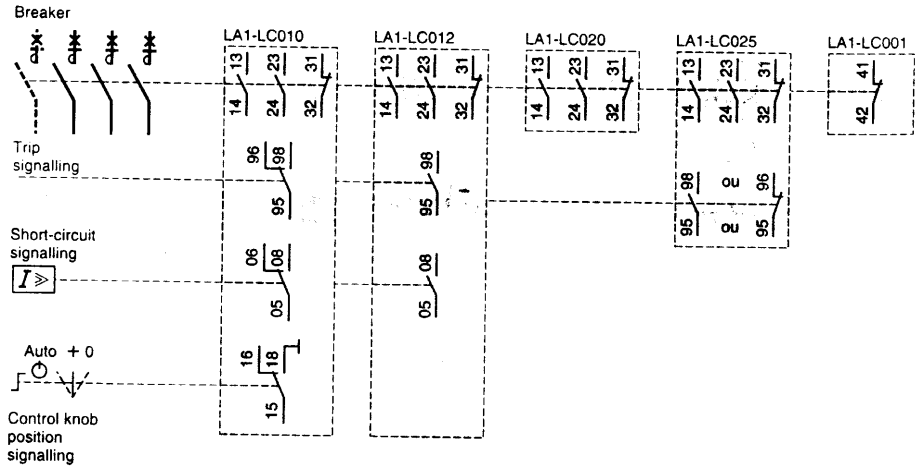


Add-on blocks

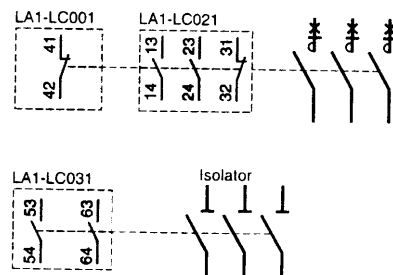
For contactor breakers LD4
Mounted on LH side



For contactor breakers LD1 or LD4 and reversing contactor breakers LD5
Mounted on RH side



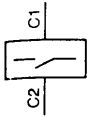
For reversing contactor breakers LD5
Mounted on LH side



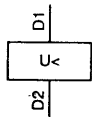
Motor starters

Integrated starters - Control and Power Switching (CPS) integral 18, 32 and 63 contactor breakers and reversing contactor breakers

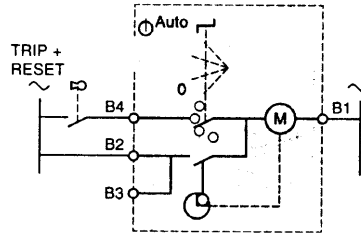
Tripping devices (1) for LD1, LD4, LD5
LA1-LC071



LA1-LC070, LC072



Remote electrical reset devices (1) for LD1, LD4, LD5
LA1-LC052●

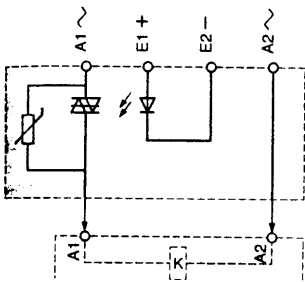


The use of instantaneous auxiliary contact block LA1-LC020 prevents the use of tripping devices or electrical reset devices

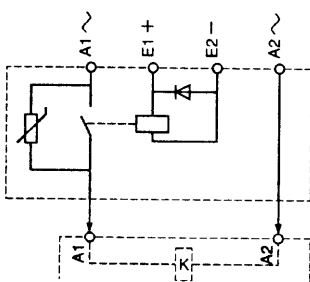
(1) For contactor breakers and reversing contactor breakers already fitted with an LA1-LC010 or LA1-LC012 instantaneous auxiliary contact block.

Interface modules

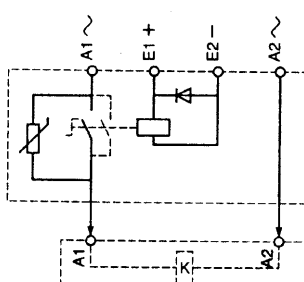
LA4-DW solid state



LA4-DF relay output

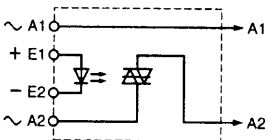


LA4-DL relay output
(with manual override)

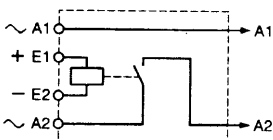


Interface modules

LA1-LC180, LD180



LA1-LC580, LD580

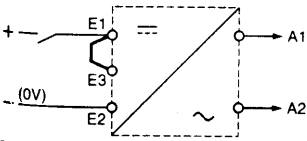


Voltage converters

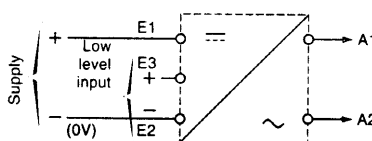
LA1-LB080, LC080, LD080

(supplied with contactor breakers for ~ control circuit operation)

Switching by control contact
24 or 48 V

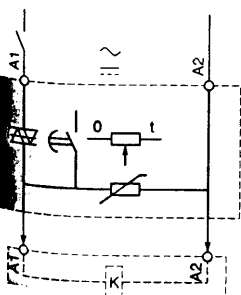


Switching by "Low level" input
24 or 48 V

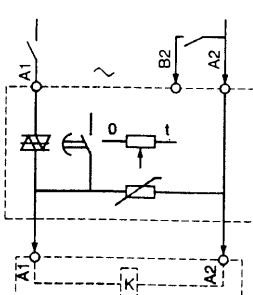


Electronic serial timer modules

LA4-DT On-delay

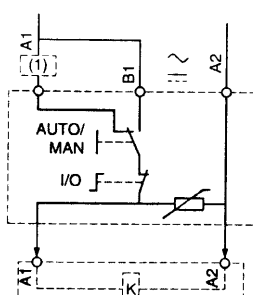


LA4-DR Off-delay



Control modules Automatic-Manual-Stop

LA4-DM●



(1) PLC.

