

# Power control and protection

The essential guide



# Power control and protection

## The essential guide

### Welcome to the Simply Smart\* world, compliments of Telemecanique

The TeSys range makes you a full part of it,  
offering you ever greater...

- simplicity...
- compactness...
- transparency...
- flexibility...

\*Simply Smart: more ingenuity and intelligence for continually improving of use.

### TeSys for a new start

New horizons are opening up to you.  
Increase your productivity - adopt our solutions which help to  
simplify setting up.

#### **Motor starters**

Ready-to-use component combinations, designed to work together  
in perfect harmony.

Safe operation and level of coordination guaranteed by a major  
manufacturer.

#### **Motor power starters**

Application-based selection guides allowing fast selection from a  
wide range of components.

Solutions for a variety of power control applications: lighting,  
capacitor switching, heating, changeover contactor pairs, resistive  
loads, upstream protection.

*A simplified selection  
guide that allows you to  
quickly select the  
components you need to  
build your motor starters  
or motor power starters.  
A range of simple,  
compact and advanced  
components for power  
control and protection.*





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# Contactors

## 0.06 to 5.5 kW

### TeSys model k



#### Connections

##### ■ screw clamp terminals

Rated operational current	le max AC-3 (Ue ≤ 440V)	6 A	9 A	12 A
	le AC-1 (θ ≤ 40° C)	-	20 A	-
Rated operational power	220/240 V	1.5 kW	2.2 kW	3 kW
in category AC3	380/400 V...415/440 V	2.2 kW	4 kW	5.5 kW
	660/690 V...500 V	3 kW	4 kW	4 kW
Contactor type <sup>(1)*</sup>	~	LC1-K06** LP1-K06** or LP4-K06**	LC1-K09** LP1-K09 or LP4-K09**	LC1-K12** LP1-K12 or LP4-K12**
Reversing contactor type *	~	LC2-K06	LC2-K09	LC2-K12
with mechanical interlock	≡	LP2-K06 or LP5-K06	LP2-K09 or LP5-K09	LP2-K12 or LP5-K12

##### ■ spring terminals

Add the figure 3 before the voltage code. Example LC1-K0610\*\* becomes LC1-K06103\*\*

##### ■ Faston connectors, 1 x 6.35 or 2 x 2.8

Add the figure 7 before the voltage code. Example LC1-K0610\*\* becomes LC1-K06107\*\*

##### ■ solder pins for printed circuit boards

Add the figure 5 before the voltage code. Example LC1-K0610\*\* becomes LC1-K06105\*\*

(1) Basic reference, to be completed by adding 01 for N/C auxiliary contact, or 10 for N/O auxiliary contact.

\* Basic reference to be completed by adding the coil voltage

#### Standard control circuit voltages

##### ~ supply

##### Contactors LC1-K (0.8...1.15 Uc) (0.85...1.1Uc)

Volts	12	20	24	36	42	48	110	115	120	127	200/208	220/230	230	230/240
50/60 Hz	<b>J7</b>	<b>Z7</b>	<b>B7</b>	<b>C7</b>	<b>D7</b>	<b>E7</b>	<b>F7</b>	<b>FE7</b>	<b>G7</b>	<b>FC7</b>	<b>L7</b>	<b>M7</b>	<b>P7</b>	<b>U7</b>
Volts	256	277	380/400	400	400/415	440	480	500	575	600	660/690			
50/60 Hz	<b>W7</b>	<b>UE7</b>	<b>Q7</b>	<b>V7</b>	<b>N7</b>	<b>R7</b>	<b>T7</b>	<b>S7</b>	<b>SC7</b>	<b>X7</b>	<b>Y7</b>			

Example of complete reference LC1-K0910P7

##### ≡ supply

##### Contactors LP1-K (0.8...1.15 Uc)

Volts	12	20	24	36	48	60	72	100	110	125	155	174	200	220	230	240	250
Code	<b>JD</b>	<b>ZD</b>	<b>BD</b>	<b>CD</b>	<b>ED</b>	<b>ND</b>	<b>SD</b>	<b>KD</b>	<b>FD</b>	<b>GD</b>	<b>PD</b>	<b>QD</b>	<b>LD</b>	<b>MD</b>	<b>MPD</b>	<b>MUD</b>	<b>UD</b>

Coil with integral suppression device available, add 3 to the code required. Example JD3

##### Low consumption

##### Contactors LP4-K (0.7...1.30 Uc), coil suppression as standard

Volts	12	20	24	48	72	110	120
Code	<b>JW3</b>	<b>ZW3</b>	<b>BW3</b>	<b>EW3</b>	<b>SW3</b>	<b>FW3</b>	<b>GW3</b>

Example of complete reference LC1-K0910BD



## Auxiliary contact blocks

### ■ instantaneous, screw clamp connections

	■ for LC1, LP1-K, LP4			■ for LC1, LP1-K				
Composition	2N/O	- 2N/C	1N/O 1N/C	4N/O	3N/O 1N/C	2N/C 2N/C	1N/O 3N/C	- 4N/C
Reference	LA1-KN20	LA1-KN02	LA1-KN11	LA1-KN40	LA1-KN31	LA1-KN22	LA1-KN13	LA1-KN04

### ■ electronic time delay

Relay outputs, with common point changeover contact,  $\sim$  or  $\equiv$  24...48, 2 A maximum

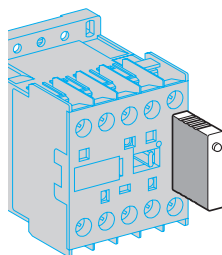
Control voltage 0.85...1.1Uc

Maximum switching capacity 250 VA or 150 W

Operating temperature -10...+60°C

Reset time: 1.5 s for 0.5 s after the time delay period

Type	On-delay	
Timing range	1...30 s	
Composition	1	
Voltage	$\sim$ or $\equiv$ 24...48 V	$\sim$ 110...240
Reference	LA2-KT2E	LA2-KT2U



## Suppressor modules

### For LC1, LP1-K

Type	Varistor ( $\sim$ and $\equiv$ )				Diode ( $\equiv$ ) + zener		RC ( $\sim$ )
Voltage	12...24 V	32...48 V	50...129 V	130...250 V	12...24 V	32...48 V	220...250 V
Reference	LA4-KE1B	LA4-KE1E	LA4-KE1FC	LA4-KE1UG	LA4-KC1B	LA4-KC1E	LA4-KA1U

# Contactors

## 0.06 to 75 kW TeSys model d



### Connections

#### ■ screw clamp terminals or connectors

<b>Rated operational voltage</b>		690 V				
<b>Rated operational current</b>	le max AC-3 (Ue ≤ 440V)	9 A	12 A	18 A	25 A	32 A
	le AC-1 (θ ≤ 60° C)	25 A		32 A	40 A	50 A
<b>Rated operational power</b>	220/240 V	2.2 kW	3 kW	4 kW	5.5 kW	7.5 kW
<b>in category AC3</b>	380/400 V	4 kW	5.5 kW	7.5 kW	11 kW	15 kW
	415/440 V	4 kW	5.5 kW	9 kW	11 kW	15 kW
	500 V	5.5 kW	7.5 kW	10 kW	15 kW	18.5 kW
	660/690 V	5.5 kW	7.5 kW	10 kW	15 kW	18.5 kW
	1000 V	-	-	-	-	-
<b>Contactor type *</b>		<b>LC1-D09</b>	<b>LC1-D12</b>	<b>LC1-D18</b>	<b>LC1-D25</b>	<b>LC1-D32</b>
<b>Reversing contactor type * with mechanical interlock</b>		<b>LC2-D09</b>	<b>LC2-D12</b>	<b>LC2-D18</b>	<b>LC2-D25</b>	<b>LC2-D32</b>

#### ■ spring terminals <sup>(1)</sup>

Add the figure 3 before the voltage code. Example **LC1-D09P7** becomes **LC1-093P7**

#### ■ lug-clamps <sup>(2)</sup>

Add the figure 6 before the voltage code. Example **LC1-D09P7** becomes **LC1-096P7**

#### ■ Faston connectors <sup>(3)</sup> 2 x 6.35 (power) and 1 x 6.35 (control) up to D12 only

Add the figure 9 before the voltage code. Example **LC1-D09P7** becomes **LC1-099P7**

\* Basic reference to be completed by adding the coil voltage



(1)



(2)



(3)

### Standard control circuit voltages

#### ~ supply

Volts	24	42	48	110	115	220	230	240	380	400	415	440	500
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**Contactors LC1-D09...D50** (coils D115 and D150 with integral suppression device fitted as standard)

50/60 Hz	<b>B7</b>	<b>D7</b>	<b>E7</b>	<b>F7</b>	<b>FE7</b>	<b>M7</b>	<b>P7</b>	<b>U7</b>	<b>Q7</b>	<b>V7</b>	<b>N7</b>	<b>R7</b>	-
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**Contactors LC1-D40...D115**

50 Hz	<b>B5</b>	<b>D5</b>	<b>E5</b>	<b>F5</b>	<b>FE5</b>	<b>M5</b>	<b>P5</b>	<b>U5</b>	<b>Q5</b>	<b>V5</b>	<b>N5</b>	<b>R5</b>	<b>S5</b>
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60 Hz	<b>B6</b>	-	<b>E6</b>	<b>F6</b>	-	<b>M6</b>	-	<b>U6</b>	<b>Q6</b>	-	-	<b>R6</b>	-
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#### == supply

Volts	12	24	36	48	60	72	110	125	220	250	440
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**Contactors LC1-D09...D38** (coils with integral suppression device fitted as standard)

U 0.7...1.25 Uc	<b>JD</b>	<b>BD</b>	<b>CD</b>	<b>ED</b>	<b>ND</b>	<b>SD</b>	<b>FD</b>	<b>GD</b>	<b>MD</b>	<b>UD</b>	<b>RD</b>
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**Contactors LC1-D40...D95**

U 0.85...1.1 Uc	<b>JD</b>	<b>BD</b>	<b>CD</b>	<b>ED</b>	<b>ND</b>	<b>SD</b>	<b>FD</b>	<b>GD</b>	<b>MD</b>	<b>UD</b>	<b>RD</b>
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U 0.75...1.2 Uc	<b>JW</b>	<b>BW</b>	<b>CW</b>	<b>EW</b>	-	<b>SW</b>	<b>FW</b>	-	<b>MW</b>	-	-
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**Contactors LC1-D115 and D150** (coils with integral suppression device fitted as standard)

U 0.75...1.2 Uc	-	<b>BD</b>	-	<b>ED</b>	<b>ND</b>	<b>SD</b>	<b>FD</b>	<b>GD</b>	<b>MD</b>	<b>UD</b>	<b>RD</b>
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#### Low consumption

**Contactors LC1-D09...D38** (coils with integral suppression device fitted as standard)

Volts ==	5	12	20	24	48	110	120	250
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U 0.7...1.25 Uc	<b>AL</b>	<b>JL</b>	<b>ZL</b>	<b>BL</b>	<b>EL</b>	<b>FL</b>	<b>ML</b>	<b>UL</b>
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Example of complete reference **LC1-D09P7**



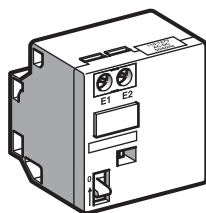


	1 000 V on ~ supply, 690 V on ≡ supply						
38 A	40 A	50 A	65 A	80 A	95 A	115 A	150 A
	60 A	80 A		125 A		200 A	
9 kW	11 kW	15 kW	18.5 kW	22 kW	25 kW	30 kW	40 kW
18.5 kW	18.5 kW	22 kW	30 kW	37 kW	45 kW	55 kW	75 kW
18.5 kW	22 kW	25/30 kW	37 kW	45 kW	45 kW	59 kW	80 kW
18.5 kW	22 kW	30 kW	37 kW	55 kW	55 kW	75 kW	90 kW
18.5 kW	30 kW	33 kW	37 kW	45 kW	45 kW	80 kW	100 kW
-	22 kW	30 kW	37 kW	45 kW	45 kW	75 kW	90 kW
<b>LC1-D38</b>	<b>LC1-D40</b>	<b>LC1-D50</b>	<b>LC1-D65</b>	<b>LC1-D80</b>	<b>LC1-D95</b>	<b>LC1-D115</b>	<b>LC1-D150</b>
<b>LC2-D38</b>	<b>LC2-D40</b>	<b>LC2-D50</b>	<b>LC2-D65</b>	<b>LC2-D80</b>	<b>LC2-D95</b>	<b>LC2-D115</b>	<b>LC2-D150</b>

### Mounting accessories for 3-pole reversing contactors

2 identical contactors with screw clamp terminals or connectors, horizontally mounted

Mechanical interlock	Set of connections	Mechanical interlock
<ul style="list-style-type: none"> <li>with an electrical interlocking kit for the contactors</li> </ul>		
LC1-D09...D38	LAD-9R1V	included
<ul style="list-style-type: none"> <li>with integral electrical interlocking</li> </ul>		
LC1-D40...D65	LA9-D6569	LA9-D4002
LC1-D80 and D95 (~)	LA9-D8069	LA9-D4002
LC1-D80 and D95 (≡)	LA9-D8069	LA9-D8002
LC1-D115 and D150	LA9-D11569	LA9-D11502
<ul style="list-style-type: none"> <li>without electrical interlocking</li> </ul>		
LC1-D09...D38	LA9-9R1	included
LC1-D40...D65	LA9-D6569	LA9-D50978
LC1-D80 and D95 (~)	LA9-D8069	LA9-D50978
LC1-D80 and D95 (≡)	LA9-D8069	LA9-D80978



### Mechanical latch blocks

Clip-on front mounting, manual or electrical unlatching control

For use on contactor	Reference	Standard control circuit voltages
LC1-D40...D65 3P ~ or ≡, LC1-D65 4P ~, LC1-D65 4P ≡	LA6-DK10•	B E F M Q
LC1-D80...D150 3P ~, LC1-D80 and D115 3P ~, LC1-D115 4P ≡	LA6-DK20•	B E F M Q
LC1-D09...D38 ~ or ≡, LC1-DT20...DT40 ~ or ≡	LA6-6K10•	B E F M Q

# Contactors 0.06 to 75 kW

## TeSys model d



### Auxiliary contact blocks

■ instantaneous, for connection by screw clamp terminals

■ time delay

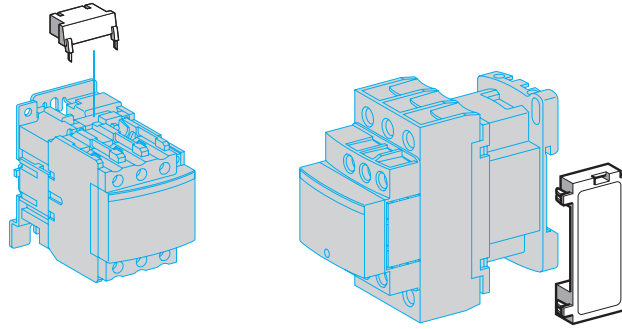
■ front mounting				■ side mounting				■ front mounting		
Composition	Reference	Composition	Reference	Composition	Reference	Composition	Reference	Type	Range	Reference
N/O N/C		N/O N/C		N/O N/C		N/O N/C				
1 -	LAD-N10	1 1	LAD-N11	2 2	LAD-N22	1 1	LAD-8N11	On-delay	0.1...3 s	LAD-T0
- 1	LAD-N01	2 -	LAD-N20	1 3	LAD-N13	2 -	LAD-8N20		0.1...30 s	LAD-T2
		- 2	LAD-N02	4 -	LAD-N40	- 2	LAD-8N02		10...180 s	LAD-T4
				- 4	LAD-N04			Off-delay	0.1...3 s	LAD-R0
				3 1	LAD-N31				0.1...30 s	LAD-R2
									10...180 s	LAD-R4

### Maximum number of auxiliary contacts that can be fitted

Contactors

Type	Instantaneous auxiliary contact blocks					Time delay Front mounting
	Number of poles and size	Side mounting	Front mounting			
			1 contact	2 contacts	4 contacts	
~	3P LC1-D09...D38	1 on LH side and	-	1	or 1	or 1
	LC1-D40...D95 (50/60 Hz)	1 on each side or	2	and 1	or 1	or 1
	LC1-D40...D95 (50 or 60 Hz)	1 on each side and	2	and 1	or 1	or 1
	LC1-D115 and D150	1 on LH side	-	and 1	or 1	or 1
=	4P LC1-DT20...DT40	1 on LH side	-	1	or 1	or 1
	LC1-D65 and D80	1 on each side or	1	or 1	or 1	or 1
	LC1-D115	1 on each side and	1	or 1	or 1	or 1
	3P LC1-D09...D38	-	-	1	or 1	or 1
=	LC1-D40...D95	-	1	or 1	or 1	or 1
	LC1-D115 and D150	1 on LH side and	-	1	or 1	or 1
	4P LC1-DT20...DT40	-	-	1	or 1	or 1
	LP1-D65 and D80	-	2	and 1	or 1	or 1
Low Consumption	3P LC1-D09...D38	-	-	1	-	-
	4P LC1-DT20...DT40	-	-	1		





## Suppressor modules

### Varistors (peak limiting)

Protection provided by limiting the transient voltage to 2 Uc max.

Maximum reduction of transient voltage peaks.

Slight increase in drop-out time (1.1 to 1.5 times the normal time)

Mounting	For use with contactor Rating	Type		Reference
		V ~	V ==	
Clip-on	D09...D38 (3P)	12...24 V	-	LAD-4VE
	DT20...DT40	50...127 V	-	LAD-4VG
		110...240 V	-	LAD-4VU
Screw fixing	D40...D115 (3P) and	24...48 V	-	LA4-DE2E
		50...127 V	-	LA4-DE2G
	D65...D115 (4P)	110...250 V	-	LA4-DE2U
		D40...D115 (3P) and	-	24...48 V
	D65...D115 (4P)		-	50...127 V
		-	110...250 V	-

### Diodes

No overvoltage or oscillating frequency.

Increase in drop-out time (6 to 10 times the normal time).

Polarised component.

Screw fixing	D40...D95 (3P)	-	24...250 V	LA4-DC3U
	D65 and D80 (4P)	-		

### Bidirectional peak limiting diode

Protection provided by limiting the transient voltage to 2 Uc max.

Maximum reduction of transient voltage peaks.

Clip-on	D09...D38 (3P)	24 V	-	LAD-4TB
	DT20...DT40	72 V	-	LAD-4TS
Screw fixing	D40...D95 (3P)	24 V	-	LA4-DB2B
		72 V	-	LA4-DB2S
	D40...D95 (3P) and D65 and D80 (4P)	-	24 V	LA4-DB3B
		-	72 V	LA4-DB3S

### RC circuits (Resistor-Capacitor)

Effective protection for circuits highly sensitive to "high frequency" interference.

For use only in cases where the voltage is virtually sinusoidal, i.e. less than - 5% total harmonic distortion.

Voltage limited to 3 Uc max and oscillating frequency limited to 400 Hz max.

Slight increase in drop-out time (1.2 to 2 times the normal time)

Clip-on	D09...D38 (3P)	12...24 V	-	LAD-4RCE
	DT20...DT40	110...240 V	-	LAD-4RCU
Screw fixing	D40...D150 (3P) and	24...48 V	-	LA4-DA2E
		50...127 V	-	LA4-DA2G
	D65...D115 (4P)	110...240 V	-	LA4-DA2U
		380...415 V	-	LA4-DA2N



<b>Rated operational current</b>	le max AC-3 (Ue ≤ 440V)	185 A	225 A	265 A	330 A
	le AC-1 (θ ≤ 40° C)	275 A	315 V	350 A	400 A
<b>Rated operational voltage</b>		1 000 V	1 000 V	1 000 V	1 000 V
<b>Number of poles</b>		3 or 4	3 or 4	3 or 4	3 or 4
<b>Rated operational power</b>	220/240 V	55 kW	63 kW	75 kW	100 kW
<b>in category AC3</b>	380/400 V	90 kW	110 kW	132 kW	160 kW
	415 V	100 kW	110 kW	140 kW	180 kW
	440 V	100 kW	110 kW	140 kW	200 kW
	500 V	110 kW	129 kW	160 kW	200 kW
	660/690 V	110 kW	129 kW	160 kW	220 kW
	1000 V	100 kW	100 kW	147 kW	160 kW
<b>Contactor type*</b>		<b>LC1-F185</b>	<b>LC1-F225</b>	<b>LC1-F265</b>	<b>LC1-F330</b>
<b>Reversing contactor type*</b>		<b>LC2-F185</b>	<b>LC2-F225</b>	<b>LC2-F265</b>	

\* Basic reference to be completed by adding the coil voltage

Standard control circuit voltages													
~ supply													
Volts	24	48	110	115	120	208	220	230	240	380	400	415	440
<b>Contactors LC1-F115...F225(0.85...1.1UC)</b>													
50 Hz (coil LX1)	B5	E5	F5	FE5	-	-	M5	P5	U5	Q5	V5	N5	-
60 Hz (coil LX1)	-	E6	F6	-	G6	L6	M6	-	U6	Q6	-	-	R6U7
40...400 Hz (coil LX9)	-	E7	F7	FE7	G7	L7	M7	P7	U7	Q7	V7	N7	R7
<b>Contactors LC1-F265...F330U7</b>													
40...400 Hz (coil LX1)	B7	E7	F7	FE7	G7	L7	M7	P7	U7	Q7	V7	N7	R7
<b>Contactors LC1-F400...F630U7</b>													
40...400 Hz (coil LX1)	-	E7	F7	FE7	G7 <sup>(1)</sup>	L7	M7	P7	U7	Q7	V7	N7	R7
<b>Contactors LC1-F780U7</b>													
40...400 Hz (coil LX1)	-	-	F7	FE7	F7	L7	M7	P7	U7	Q7	V7	N7	R7
<b>Contactors LC1-F800U7</b>													
40...400 Hz (coil LX1)	-	-	FE7	FE7	FE7	-	P7	P7	P7	V7	V7	V7	V7Y7
= supply													
Volts	24	48	110	125	220	230	250	400	440				
<b>Contactors LC1-F115...F330(0.85...1.1UC)</b>													
(coil LX4-F)	BD	ED	FD	GD	MD	MD	UD	-	RD				
<b>Contactors LC1-F400...F630(0.85...1.1UC)</b>													
(coil LX4-F)	-	ED	FD	GD	MD	-	UD	-	RD				
<b>Contactors LC1-F780(0.85...1.1UC)</b>													
(coil LX4-F)	-	-	FD	GD	MD	-	UD	-	RD				
<b>Contactors LC1-F800(0.85...1.1UC)</b>													
(coil LX4-F)	-	-	FW	FW	MW	MW	-	QW	-				

Example: For a 630 A contactor with a 110 V ~ coil, order **LC1-F630F7**

(1) F7 for LC1-F630



400 A	500 A	630 A	780 A	800 A
500 A	700 A	1 000 A	1 600 A	1 000 A
1 000 V	1 000 V	1 000 V	1 000 V	1 000 V
2, 3 or 4	2, 3 or 4	2, 3 or 4	3 or 4	3
110 kW	147 kW	200 kW	220 kW	250 kW
200 kW	250 kW	335 kW	400 kW	450 kW
220 kW	280 kW	375 kW	425 kW	450 kW
250 kW	295 kW	400 kW	425 kW	450 kW
257 kW	355 kW	400 kW	450 kW	450 kW
280 kW	335 kW	450 kW	475 kW	475 kW
185 kW	335 kW	450 kW	450 kW	450 kW
<b>LC1-F400</b>	<b>LC1-F500</b>	<b>LC1-F630</b>	<b>LC1-F780</b>	<b>LC1-F800</b>

For customer assembly



Auxiliary contact blocks										
instantaneous				dust & damp protected contacts			time delay 1N/O + 1 N/C			
Composition	Reference	Composition	Reference	Composition	Reference	Composition	Reference	Type	Range	Reference
N/O N/C		N/O N/C		N/O N/C		N/O N/C				
1 -	<b>LAD-N10</b>	1 1	<b>LAD-N11</b>	2 2	<b>LAD-N22</b>	2 - - -	<b>LA1-DX20</b>	On-delay	0.1...3 s	<b>LAD-T0</b>
- 1	<b>LAD-N01</b>	2 -	<b>LAD-N20</b>	1 3	<b>LAD-N13</b>	2 2 - -	<b>LA1-DY20</b>		0.1...30 s	<b>LAD-T2</b>
		- 2	<b>LAD-N02</b>	4 -	<b>LAD-N40</b>	2 - 2 -	<b>LA1-DZ40</b>		10...180 s	<b>LAD-T4</b>
				- 4	<b>LAD-N04</b>	2 - 1 1	<b>LA1-DZ31</b>		1...30 s	<b>LAD-S2</b>
				3 1	<b>LAD-N31</b>			Off-delay	0.1...3 s	<b>LAD-R0</b>
				2 2	<b>LAD-C22</b>				0.1...30 s	<b>LAD-R2</b>
									10...180 s	<b>LAD-R4</b>

### Mounting accessories for 3-pole reversing contactors for motor control

2 identical contactors, horizontally mounted

**Mechanical interlock with an electrical interlocking kit for the contactors**

Contactor type	Set of connections	Mechanical interlock
<b>LC1-F115</b>	<b>LA9-FF976</b>	<b>LA9-FF970</b>
<b>LC1-F150</b>	<b>LA9-F15076</b>	<b>LA9-FF970</b>
<b>LC1-F185</b>	<b>LA9-FG976</b>	<b>LA9-FG970</b>
<b>LC1-F225</b>	<b>LA9-F22576</b>	<b>LA9-FG970</b>
<b>LC1-F265</b>	<b>LA9-FH976</b>	<b>LA9-FJ970</b>
<b>LC1-F330</b>	<b>LA9-FJ976</b>	<b>LA9-FJ970</b>
<b>LC1-F400</b>	<b>LA9-FJ976</b>	<b>LA9-FJ970</b>
<b>LC1-F500</b>	<b>LA9-FK976</b>	<b>LA9-FJ970</b>
<b>LC1-F630 or LC1-F800</b>	<b>LA9-FL976</b>	<b>LA9-FL970</b>

# Contactors 400 to 900 kW

## TeSys model b



		750 A	1000 A	1500 A	1800 A
<b>Rated operational current</b>	le max AC-3 (Ue ≤ 440V)	750 A	1000 A	1500 A	1800 A
	le AC-1 (θ ≤ 40° C)	800 A	1250 V	2000 A	2750A
<b>Rated operational voltage</b>		1 000 V	1 000 V	1 000 V	1 000 V
<b>Number of poles</b>		1 to 4	1 to 4	1 to 4	1 to 4
<b>Rated operational power</b>	220/240 V	220 kW	280 kW	425 kW	500 kW
<b>in category AC3</b>	380/400 V	400 kW	500 kW	750 kW	900 kW
	415 V	425 kW	530 kW	800 kW	900 kW
	440 V	450 kW	560 kW	800 kW	900 kW
	500 V	500 kW	600 kW	700 kW	900 kW
	660/690 V	560 kW	670 kW	750 kW	900 kW
	1000 V	530 kW	530 kW	670 kW	750 kW
4 instantaneous contact configurations					
2 N/C + 2 N/O, 3 N/O + 1 N/C, 1 N/O + 3 N/C or 4 N/O					
<b>Contactor type*</b>		<b>LC1-BL</b>	<b>LC1-BM</b>	<b>LC1-BP</b>	<b>LC1-BR</b>

\* Basic reference to be completed by adding the coil voltage, followed by the instantaneous contact configuration.

<b>Standard control circuit voltages</b> (for other voltages, please consult your Regional Sales Office)													
Volts	48	110	125	127	220	230	240	380	400	415	440	500	
~ 50...400 Hz	-	<b>F</b>	-	<b>G</b>	<b>M</b>	<b>P</b>	<b>U</b>	<b>Q</b>	<b>V</b>	<b>N</b>	<b>R</b>	<b>S</b>	
---	<b>ED</b>	<b>FD</b>	<b>GD</b>	-	<b>MD</b>	-	-	-	-	-	<b>RD</b>	-	

Example: To order a 1500 A contactor with 127 V ~ coil with 3 N/O + 1 N/C, select **LC1-BP33G31**

<b>Mounting accessories</b>		
Description	For contactor	Reference
<b>Bar support bracket</b>	<b>LC1-BL to BR</b>	<b>LA9-B103</b>
for mounting on 120 or 150 mm centres		
<b>Mechanical interlock and locking device components</b>	<b>LC1-B</b>	<b>EZ2-LB0601</b>

### Reference to compiled by the customer

Contactor type, according to required use		CV1-B																		
~ supply 690 V, = supply 220 V/pole																				
~ supply 1000 V, = supply 440 V/pole																				
<b>Contactor rating</b>	CV1: 80 A	CV3: 80 A																		
	CV1: 200 A	CV3: 170 A																		
	CV1: 300 A	CV3: 250 A																		
	CV1: 470 A	CV3: 320 A																		
	CV1: 630 A	CV3: 500 A																		
	CV1: 1000 A																			
<b>Number of poles (PN1 main poles for CV1 and PA3 main poles for CV3)</b>																				
Normally Open main poles	1 N/O				1															
	2 N/O				2															
	3 N/O				3															
	4 N/O				4															
	5 N/O				5															
Normally Closed main poles	1 N/C								1											
	2 N/C								2											
	3 N/C								3											
No main poles				0	Z			0	Z											
<b>Operational current</b>	10 A								E											
	20 A								N											
	40 A								P											
	80 A								F											
	125 A								R											
	170 A								W											
	200 A								G											
	250 A								S											
	300 A								H											
	320 A								T											
	<b>Control circuit voltage</b>	48 V																		
110 V																				
120 V																				
208 V																				
220 V																				
230 V																				
240 V																				
380 V																				
400 V																				
440 V																				
<b>Operating frequency</b>	50 Hz																			
	60 Hz																			
	50/60 Hz																			
	=																			
= + economy resistor																				
<b>Instantaneous auxiliary contacts</b>																				
<b>Normally Open</b>	1 N/O																			
	2 N/O																			
	3 N/O																			
	4 N/O																			
<b>Normally Closed</b>	1 N/C																			
	2 N/C																			
	3 N/C																			
	4 N/C																			
Without instantaneous contact																				
On-delay	1 C/O																			
Off-delay	1 C/O																			

Example 1/ for single-phase capacitor switching: 400 V - 80 A - 1 N/O pole - Control circuit 220 V / 50 Hz, 1 N/O and 1 1N/C auxiliary contacts: **CV1-BF1F0ZM511**.

2/ for heating circuits, d.c. supply 800 V - 150 A - 2 N/O poles - Control circuit 48 V = , 1 N/O + 1 N/O On-delay auxiliary contacts: **CV3-BG2W0ZED10J**

# Thermal-magnetic circuit-breakers 0.06 to 15 kW models GV2-ME and GV2-P



## Thermal-magnetic circuit-breakers GV2-ME and GV2-P for connection by screw clamp terminals

GV2-ME with pushbutton control, GV2-P control by rotary knob

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range	Magnetic	Reference	
400/415 V			500 V			690 V			of thermal	tripping		
P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	trips	current		
kW	kA		kW	kA		kW	kA		A	A (d ± 20%)		
-	-	-	-	-	-	-	-	-	0.1...0.16	1.5	GV2-ME01	GV2-P01
0.06	★	★	-	-	-	-	-	-	0.16...0.25	2.4	GV2-ME02	GV2-P02
0.09	★	★	-	-	-	-	-	-	0.25...0.40	5	GV2-ME03	GV2-P03
0.12	★	★	-	-	-	0.37	★	★	0.40...0.63	8	GV2-ME04	GV2-P04
0.18	★	★	-	-	-	-	-	-	0.40...0.63	8	GV2-ME04	GV2-P04
0.25	★	★	-	-	-	0.55	★	★-	0.63...1	13	GV2-ME05	GV2-P05
0.37	★	★	0.37	★	★	-	-	-	1...1.6	22.5	GV2-ME06	GV2-P06
0.55	★	★	0.55	★	★	0.75	★	★	1...1.6	22.5	GV2-ME06	GV2-P06
-	-	-	0.75	★	★	1.1	★	★	1...1.6	22.5	GV2-ME06	GV2-P06
0.75	★	★	1.1	★	★	1.5	3	75	1.6...2.5	33.5	GV2-ME07	
0.75	★	★	1.1	★	★	1.5	8	100	1.6...2.5	33.5		GV2-P07
1.1	★	★	1.5	★	★	2.2	3	75	2.5...4	51	GV2-ME08	
1.1	★	★	1.5	★	★	2.2	8	100	2.5...4	51		GV2-P08
1.5	★	★	2.2	★	★	3	3	75	2.5...4	51	GV2-ME08	
1.5	★	★	2.2	★	★	3	3	100	2.5...4	51		GV2-P08
2.2	★	★	3	50	100	4	3	75	4...6.3	78	GV2-ME10	
2.2	★	★	3	★	★	4	6	100	4...6.3	78		GV2-P10
3	★	★	4	10	100	5.5	3	75	6...10	138	GV2-ME14	
3	★	★	4	50	100	5.5	6	100	6...10	138		GV2-P14
4	★	★	5.5	10	100	7.5	3	75	6...10	138	GV2-ME14	
4	★	★	5.5	50	100	7.5	6	100	6...10	138		GV2-P14
5.5	15	50	7.5	6	75	9	3	75	9...14	170	GV2-ME16	
5.5	★	★	7.5	42	75	9	6	100	9...14	170		GV2-P16
-	-	-	-	-	-	11	3	75	9...14	170	GV2-ME16	
-	-	-	-	-	-	11	6	100	9...14	170		GV2-P16
7.5	15	50	9	6	75	15	3	75	13...18	223	GV2-ME20	
7.5	50	50	9	10	75	15	4	100	13...18	223		GV2-P20
9	15	40	11	4	75	18.5	3	75	17...23	327	GV2-ME21	
9	50	50	11	10	75	18.5	4	100	17...23	327		GV2-P21
11	15	40	15	4	75	-	-	-	20...25	327	GV2-ME22 <sup>(2)</sup>	
11	50	50	15	10	75	-	-	-	20...25	327		GV2-P22
15	10	50	18.5	4	75	22	3	75	24...32	416	GV2-ME32	
15	50	50	18.5	10	75	22	4	100	24...32	416		GV2-P32

★ > 100 kA

(1) as % of I<sub>cu</sub>

(2) combined with a recommended contactor

## Thermal-magnetic circuit-breakers GV2-ME for connection by spring terminals

Add the figure 3 to the end of the reference. Example GV2-ME223 (available up to GV2-ME22)





## Accessories

### Combination block

For mounting on	LC1-K or LP1-K	LC1-D09...D38	LAD-31 and LC1-D09...D38
	<b>GV2-AF01</b>	<b>GV2-AF3</b>	<b>GV2-AF4</b>

### Sets of 3-pole busbars

63 A	Pitch	45 mm	54 mm	72 mm
Number of tap-offs	2	<b>GV2-G245</b>	<b>GV2-G254</b>	<b>GV2-G272</b>
	3	<b>GV2-G345</b>	<b>GV2-G354</b>	
	4	<b>GV2-G445</b>	<b>GV2-G454</b>	<b>GV2-G472</b>
	5		<b>GV2-G554</b>	

### Protective end cover

For unused busbar outlets	<b>GV1-G10</b>	
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### Terminal blocks

For supply to one or more GV2-G busbar sets	connection from the top	can be fitted with current limiter GV1-L3 (GV2-ME and GV2-P)
	<b>GV1-G09</b>	<b>GV1-G05</b>

### Padlockable external operator for GV2-P (150 to 290 mm)

Padlocking	In "On" and "Off" position	In "Off" position
Handle	black	red
Legend plate	blue	yellow
	IP 54	
	<b>GV2-AP01</b>	<b>GV2-AP02</b>

### Padlocking device

For all GV2 devices	For use with up to 6 padlocks (padlocks not supplied) Ø 6 mm shank max
	<b>GV2-V03</b>

## Add-on blocks

### Contact blocks

Contact types	N/O or N/C	N/O + N/C	N/O + N/O	(fault) + N/C	N/C + N/O	C/O common point
<b>Instantaneous auxiliary contacts</b>						
Mounting	front	<b>GV-AE1</b>	<b>GV-AE11</b>	<b>GV-AE20</b>		
	LH side		<b>GV-AN11</b>	<b>GV-AN20</b>		
<b>Fault signalling contact + instantaneous auxiliary contact</b>						
	LH side			<b>GV-AD1010</b>	<b>GV-AD1001</b>	<b>GV-AD0110</b>
					<b>GV-AD0101</b>	
<b>Short-circuit signalling contact</b>						
	LH side					<b>GV-AM11</b>

### Electric trips

<b>Undervoltage or shunt trips <sup>(1)</sup></b>			
Side mounting (1 block on RH side of circuit-breaker)	50 Hz		60 Hz
Voltage	24 V	<b>GV-A*025</b>	<b>GV-A*026</b>
	48 V	<b>GV-A*055</b>	<b>GV-A*056</b>
	100 V	<b>GV-A*107</b>	
	100...110 V		<b>GV-A*107</b>
	110...115 V	<b>GV-A*115</b>	<b>GV-A*116</b>
	120...127 V	<b>GV-A*125</b>	
	127 V		<b>GV-A*115</b>
	200 V	<b>GV-A*207</b>	
	200...220 V		<b>GV-A*207</b>
	220...240 V	<b>GV-A*225</b>	<b>GV-A*226</b>
	380...400 V	<b>GV-A*385</b>	<b>GV-A*386</b>
	415...440 V	<b>GV-A*415</b>	
	415 V		<b>GV-A*416</b>

(1) Undervoltage trips: replace the • with U, shunt trips: replace the • with S

# Thermal-magnetic circuit-breakers 0.37 to 37 kW model GV3-ME



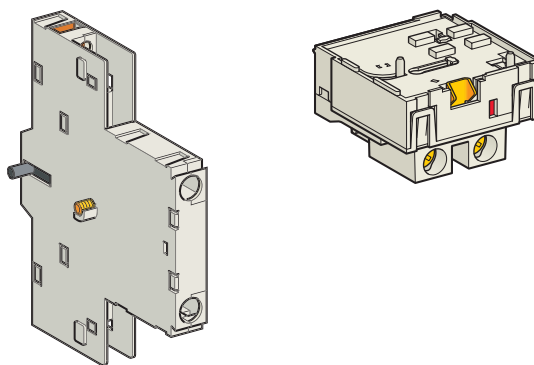
## Thermal-magnetic circuit-breakers GV3-ME for connection by screw clamp terminals

### Pushbutton control

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range of thermal trips	Reference
400/415 V			500 V			660/690 V				
P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	A	
kW	kA		kW	kA		kW	kA			
0.37	100	100	0.37	100	100	0.75	100	100	1...1.6	GV3-ME06
0.55	100	100	0.55	100	100	1.1	100	100		
			0.75	100	100					
0.75	100	100	1.1	100	100	1.5	100	100	1.6...2.5	GV3-ME07
1.1	100	100	1.5	100	100	2.2	4	100	2.5...4	GV3-ME08
1.5	100	100	2.2	100	100	3	4	100		
2.2	100	100	3	100	100	4	4	100	4...6	GV3-ME10
3	100	100	4	8	100	5.5	4	100	6...10	GV3-ME14
4	100	100	5.5	8	100	7.5	4	100		
7.5	100	50	9	8	100	9	4	100	10...16	GV3-ME20
						11	4	100		
9	100	50	11	8	100	15	4	100	16...25	GV3-ME25
11	100	50	15	8	100	18.5	4	100		
15	35	50	18.5	8	75	22	4	75	25...40	GV3-ME40 <sup>(2)</sup>
18.5	35	50	22	8	75	30	4	75		
22	35	50	30	8	75	37	4	75	40...63	GV3-ME63 <sup>(2)</sup>
30	35	50	37	8	75	45	4	75		
37	15	50	45	4	100	55	2	100	56...80	GV3-ME80 <sup>(2)</sup>

(1) as % of I<sub>cu</sub>

(2) combined with a recommended contactor



## Add-on blocks

### Contact blocks

#### Instantaneous auxiliary contacts (1 per breaker)

Normal early break type contacts	N/C + N/O	N/O + N/O	N/C + N/O + N/O	N/O + N/O + N/O	N/O + N/O <sup>(1)</sup>	N/C + N/O <sup>(1)</sup>
	<b>GV3-A01</b>	<b>GV3-A02</b>	<b>GV3-A03</b>	<b>GV3-A05</b>	<b>GV3-A06</b>	<b>GV3-A07</b>

#### Fault signalling contact

Normal early break type contacts	N/C	N/O
	<b>GV3-A08</b>	<b>GV3-A09</b>

### Electric trips

Voltage	50 Hz	110, 120, 127 V	220, 240 V	380, 415 V
	60 Hz	120, 127 V	277 V	440, 480 V
<b>Undervoltage trip</b>		<b>GV3-B11</b>	<b>GV3-B22</b>	<b>GV3-B38</b>
<b>Shunt trip</b>		<b>GV3-D11</b>	<b>GV3-D22</b>	<b>GV3-D38</b>

### Padlocking device

Start button (for bare device)	<b>GV1-V02</b>
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(1) + 2 volt free terminals

# Thermal-magnetic circuit-breakers 0.75 to 90 kW model GV7-R



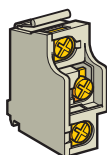
## Thermal-magnetic circuit-breakers GV7-R for connection by screw clamp terminals

### Control by rocker lever

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range	Reference
400/415 V			500 V			660/690 V			of thermal	
P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	trips	
kW	kA		kW	kA		kW	kA		A	
7.5	25	100	9	18	100	11	8	100	12...20	<b>GV7-RE20</b>
9	25	100	11	18	100	15	8	100		
7.5	70	100	9	50	100	11	10	100	12...20	<b>GV7-RS20</b>
9	70	100	11	50	100	15	10	100		
9	25	100	11	18	100	15	8	100	15...25	<b>GV7-RE25</b>
11	25	100	15	18	100	18.5	8	100		
9	70	100	11	50	100	15	10	100	15...25	<b>GV7-RS25</b>
11	70	50	15	50	100	18.5	10	100		
18.5	25	100	18.5	18	100	22	8	100	25...40	<b>GV7-RE40</b>
			22	18	100					
18.5	70	100	18.5	50	100	22	10	100	25...40	<b>GV7-RS40</b>
22	25	100	30	18	100	30	8	100	30...50	<b>GV7-RE50</b>
37	25	100	45	18	100	55	8	100	48...80	<b>GV7-RE80</b>
			55	18	100					
37	70	100	45	50	100	55	10	100	48...80	<b>GV7-RS80</b>
			55	50	100					
45	25	100	-	18	100	75	8	100	60...100	<b>GV7-RE100</b>
45	70	100	-	50	100	75	10	100	60...100	<b>GV7-RS100</b>
55	35	100	75	30	100	90	8	100	90...150	<b>GV7-RE150</b>
75	70	100	90	30	100	110	8	100		
55	70	100	75	50	100	90	10	100	90...150	<b>GV7-RS150</b>
75	70	100	90	50	100	110	10	100		
90	35	100	110	30	100	160	8	100	132...220	<b>GV7-RE220</b>
110	35	100	132	30	100	200	8	100		
			160	30	100					
90	70	100	110	50	100	160	10	100	132...220	<b>GV7-RS220</b>

(1) as % of I<sub>cu</sub>



Add-on blocks						
Contact blocks						
<b>Auxiliary contacts</b>						
Contact type	C/O GV7-AE11					
<b>Thermal or magnetic fault discrimination</b>						
	≈ 24...48 V or ≡ 24...72 V			≈ 110...240 V		
	GV7-AD111			GV7-AD112		
Electric trips						
Voltage	50/60 Hz	48 V	110... 130 V	200... 240 V	380...440 V	525 V
	50 Hz					
Undervoltage trip <sup>(1)</sup>		GV7-AU055	GV7-AU107	GV7-AU207	GV7-AU387	GV7-AU525
Shunt trip <sup>(1)</sup>		GV7-AS055	GV7-AS107	GV7-AS207	GV7-AS387	GV7-AS525

(1) For mounting of a GV7-AD or a GV7-AU or AS

Accessories			
<b>Terminal shields IP 405</b>			
Supplied with the sealing accessory	GV7-AC01		
<b>Phase barriers</b>			
Safety accessories	GV7-AC04		
used when fitting of shields is impossible			
<b>Insulating screens</b>			
Ensure insulation between	GV7-AC05		
the connections and the backplate			
<b>Kit for combination with contactor</b>			
Allowing link between the circuit-breaker and the contactor	LC1-F115 to F185 GV7-AC06	LC1-F225 and F26 GV7-AC07	LC1-D115 and D150 GV7-AC08
<b>Rotary handles</b>			
Handle	black		red
Legend plate	black		yellow
■ direct	IP 40	GV7-AP03	GV7-AP04
■ extended	IP 55	GV7-AP01	GV7-AP02
<b>Conversion accessory</b>			
for mounting on enclosure door	IP 43	GV7-AP05	
<b>Locking device</b>			
For circuit-breaker not fitted with a rotary handle	GV7-V01		

# Magnetic circuit-breakers

## 0.06 to 15 kW models GV2-L and GV2-LE



### Magnetic circuit-breakers GV2-LE and GV2-L for connection by screw clamp terminals

GV2-LE control by rocker lever, GV2-L control by rotary knob

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3

400/415 V									Magnetic protection rating	Tripping current d ± 20%	Use in association with thermal overload relay	Reference
500 V			690 V									
P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>	P	I <sub>cu</sub>	I <sub>cs</sub> <sup>(1)</sup>				
kW	kA		kW	kA		kW	kA					
0.06	★	★	-	-	-	-	-	-	0.4	5	LR2-K0302	GV2-LE03
0.09	★	★	-	-	-	-	-	-	0.4	5	LR2-K0304 or LRD-03	GV2-LE03 GV2-L03
0.12	★	★	-	-	-	0.37	★	★	0.63	8	LR2-K0304 or LRD-04	GV2-LE04 GV2-L04
0.18	★	★	-	-	-	-	-	-	0.63	8	LR2-K0305 or LRD-04	GV2-LE04 GV2-L04
-	-	-	-	-	-	0.55	★	★	1	13	LR2-K0305 or LRD-05	GV2-LE05 GV2-L05
0.25	★	★	-	-	-	-	-	-	1	13	LR2-K0306 or LRD-05	GV2-LE05 GV2-L05
-	-	-	-	-	-	0.75	★	★	1	13	LR2-K0306 or LRD-06	GV2-LE05 GV2-L05
0.37	★	★	0.37	★	★	-	-	-	1	13	LR2-K0306 or LRD-05	GV2-LE05 GV2-L05
0.55	★	★	0.55	★	★	1.1	★	★	1.6	22.5	LR2-K0307 or LRD-06	GV2-LE06 GV2-L06
-	-	-	0.75	★	★	-	-	-	1.6	22.5	LR2-K0307 or LRD-06	GV2-LE06 GV2-L06
0.75	★	★	1.1	★	★	1.5	3	75	2.5	33.5	LR2-K0308	GV2-LE07
0.75	★	★	1.1	★	★	1.5	4	100	2.5	33.5	LRD-07	GV2-L07
1.1	★	★	-	-	-	-	-	-	2.5	33.5	LR2-K0308 or LRD-08	GV2-LE08 GV2-L08
1.5	★	★	1.5	★	★	3	3	75	4	51	LR2-K0310	GV2-LE08
1.5	★	★	1.5	★	★	3	4	100	4	51	LRD-08	GV2-L08
-	-	-	2.2	★	★	-	-	-	4	51	LR2-K0312 or LRD-08	GV2-LE08 GV2-L08
2.2	★	★	3	50	100	4	3	75	6.3	78	LR2-K0312	GV2-LE10
2.2	★	★	3	★	★	4	4	100	6.3	78	LRD-10	GV2-L10
3	★	★	4	10	100	5.5	3	75	10	138	LR2-K0314	GV2-LE14
3	★	★	4	10	100	5.5	4	100	10	138	LRD-12	GV2-L14
4	★	★	5.5	10	100	-	-	-	10	138	LR2-K0316 or LRD-14	GV2-LE14 GV2-L14
-	-	-	-	-	-	7.5	3	75	10	138	LRD-14	GV2-LE14
-	-	-	-	-	-	7.5	4	100	10	138	LRD-14	GV2-L14
-	-	-	-	-	-	9	3	75	14	170	LRD-16	GV2-LE16
-	-	-	-	-	-	9	4	100	14	170	LRD-16	GV2-L16
5.5	15	50	7.5	6	75	11	3	75	14	170	LR2-K0321	GV2-LE16
5.5	50	50	7.5	10	75	11	4	100	14	170	LRD-16	GV2-L16
7.5	15	50	9	6	75	15	3	75	18	223	LRD-21	GV2-LE20
7.5	50	50	9	10	75	15	4	100	18	223	LRD-21	GV2-L20
9	15	40	11	4	75	18.5	3	75	25	327	LRD-22	GV2-LE22
9	50	50	11	10	75	18.5	4	100	25	327	LRD-22	GV2-L22
11	15	40	15	4	75	-	-	-	25	327	LRD-22	GV2-LE22
11	50	50	15	10	75	-	-	-	25	327	LRD-22	GV2-L22
15	10	50	18.5	4	75	22	3	75	32	416	LRD-32	GV2-LE32
15	50	50	18.5	10	75	22	4	100	32	416	LRD-32	GV2-L32

★ > 100 kA

(1) as % of I<sub>cu</sub>



<b>Accessories</b>			
<b>Combination block</b>			
For mounting on	LC1-K or LP1-K	LC1-D09...D38	LAD-311 and LC1-D09...D38
	<b>GV2-AF01</b>	<b>GV2-AF3</b>	<b>GV2-AF4</b>
<b>Sets of 3-pole busbars</b>			
63 A	Pitch	45 mm	54 mm
Number of tap-offs	2	<b>GV2-G245</b>	<b>GV2-G254</b>
	3	<b>GV2-G345</b>	<b>GV2-G354</b>
	4	<b>GV2-G445</b>	<b>GV2-G454</b>
	5		<b>GV2-G554</b>
			<b>GV2-G272</b>
			<b>GV2-G472</b>
<b>Protective end cover</b>			
For unused busbar outlets	<b>GV1-G10</b>		
<b>Terminal blocks</b>			
For supply to one or more GV2-G busbar sets	connection from the top	can be fitted with current limiter GV1-L3 (GV2-ME and GV2-P)	
		<b>GV1-G09</b>	<b>GV1-G05</b>
<b>Padlockable external operator</b>			
Padlocking	In "On" and "Off" position	In "Off" position	
Handle	black	red	
Legend plate	blue	yellow	
for GV2-L (50 to 290 mm)	IP 54	<b>GV2-AP01</b>	<b>GV2-AP02</b>
for GV2-LE	IP 54	<b>GV2-AP03</b>	
<b>Padlocking device</b>			
Up to 6 padlocks (padlocks not supplied) Ø 6 mm shank max.	<b>GV2-V03</b>		

<b>Add-on blocks</b>						
<b>Contact blocks</b>						
Contact type	N/O or N/C	N/O + N/C	N/O + N/O	(fault) + N/C	N/C + N/O	C/O common point
<b>Instantaneous auxiliary contacts</b>						
Mounting	front	<b>GV-AE1</b>	<b>GV-AE11</b>	<b>GV-AE20</b>		
	LH side		<b>GV-AN11</b>	<b>GV-AN20</b>		
<b>Fault signalling contact + instantaneous auxiliary contact</b>						
	LH side			<b>GV-AD1010</b>	<b>GV-AD1001</b>	<b>GV-AD0110</b>
					<b>GV-AD0101</b>	
<b>Short-circuit signalling contact</b>						
	LH side					<b>GV-AM11</b>
<b>Electric trips</b>						
<b>Undervoltage or shunt trips <sup>(1)</sup></b>						
Side mounting (1 block on RH side of circuit-breaker)	50 Hz		60 Hz			
Voltage	24 V	<b>GV-A*025</b>		<b>GV-A*026</b>		
	48 V	<b>GV-A*055</b>		<b>GV-A*056</b>		
	100 V	<b>GV-A*107</b>				
	100...110 V			<b>GV-A*107</b>		
	110...115 V	<b>GV-A*115</b>		<b>GV-A*116</b>		
	120...127 V	<b>GV-A*125</b>				
	127 V			<b>GV-A*115</b>		
	200 V	<b>GV-A*207</b>				
	200...220 V			<b>GV-A*207</b>		
	220...240 V	<b>GV-A*225</b>		<b>GV-A*226</b>		
380...400 V	<b>GV-A*385</b>		<b>GV-A*386</b>			
415...440 V	<b>GV-A*415</b>					
415 V			<b>GV-A*416</b>			

(1) Undervoltage trips: replace the • with U, shunt trips: replace the • with S

# Magnetic circuit-breakers

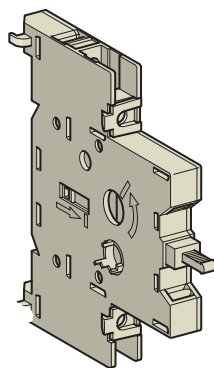
## 15 to 37 kW model GK3-EF



### Magnetic circuit-breakers GK3-EF for connection by screw clamp terminals

Control by rotary knob

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Associated equipment		Circuit-breaker	
400/415 V			500 V			690 V			Contactor	Thermal	Short-circuit	
P	I <sub>cu</sub>	I <sub>cs</sub>	P	I <sub>cu</sub>	I <sub>cs</sub>	P	I <sub>cu</sub>	I <sub>cs</sub>	min. size	overload	protection	Reference
kW	kA		kW	kA		kW	kA			relay	Rating A	
15	50	30	18.5	20	30	-	-	-	LC1-D32	LRD-32	40	<b>GK3-EF40</b>
-	-	-	-	-	-	22	6	60	LC1-D40	LRD-3353	40	<b>GK3-EF40</b>
18.5	50	30	22	20	30	30	6	60	LC1-D40	LRD-3355	40	<b>GK3-EF40</b>
22	35	25	30	15	30	-	-	-	LC1-D50	LRD-3357	65	<b>GK3-EF65</b>
-	-	-	-	-	-	37	6	50	LC1-D65	LRD-3357	65	<b>GK3-EF65</b>
30	35	25	37	15	30	-	-	-	LC1-D65	LRD-3359	65	<b>GK3-EF65</b>
30	35	25	37	15	30	-	-	-	LC1-D65	LRD-3361	65	<b>GK3-EF65</b>
-	-	-	-	-	-	45	6	50	LC1-D80	LRD-3359	65	<b>GK3-EF65</b>
37	35	25	45	15	30	-	-	-	LC1-D80	LRD-3361	80	<b>GK3-EF80</b>
37	35	25	55	15	30	-	-	-	LC1-D80	LRD-3363	80	<b>GK3-EF80</b>



### Add-on blocks

#### Contact blocks

Contact types	N/O	N/O + N/O	N/C + N/O	N/C	N/O
<b>On-Off signalling contacts</b> and "Control circuit test" function (1 or 2 blocks per device) mounted on RH side of GK3-EF	<b>GK2-AX10</b>	<b>GK2-AX20</b>	<b>GK2-AX50</b>		
<b>Instantaneous fault signalling contacts</b> (1 or 2 blocks per device) mounted on LH side of GK3-EF	<b>GK2-AX12</b>	<b>GK2-AX22</b>	<b>GK2-AX52</b>		
<b>Fault signalling contact</b> <sup>(1)</sup>				<b>GV3-A08</b>	<b>GV3-A09</b>

(1) 1 trip OR 1 fault signalling contact to be fitted inside the circuit-breaker.

### Accessories

#### Padlocking device

for padlocking the operator, with up to 3 padlocks (padlocks not supplied) **GK3-AV01**

#### External operator

for mounting on enclosure door.

**GK3-AP03**  
Red Ø 40 pushbutton on yellow plate, can be locked in position O by means of up to 3 padlocks with door locked in position I, and door locked in position O when padlocked

# Fuse carrier \_\_\_\_\_ 0 to 125 A



Fuse carrier							
Rated operational voltage with links, a.c. supply		480 V	480 V	690 V	690 V	690 V	690 V
Maximum continuous current for ambient temperature $\leq 40^{\circ}\text{C}^{(1)}$							
with links		20	20	32	32	50	125
with aM cartridge fuses		10	10	25	25	50	125
with gG cartridge fuses		20	20	30	30	40	100
Conforming to standards	NF C 61-201	●	-	●	-	-	-
	IEC 947-3	●	●	●	●	●	●
Fuse carrier type		DF6-AB08	GK1-C	DF6-AB10	GK1-D	GK1-E	GK1-F



Fuse carrier							
Composition		1 P	1 N	3 P + N	2 P	3 P	3 P + N
Size of cartridge fuse	Rated thermal current						
or link							
8.5 x 31.5	20 A	DF6-AB08	DF6-N10	GK1-CC	GK1-CD	GK1-CF	GK1-CH
10 x 38	32 A	DF6-AB10	DF6-N10	GK1-DC	GK1-DD	GK1-DF	GK1-DH
14 x 51	50 A	GK1-EB	GK1-EN	GK1-EC	GK1-ED	GK1-EF	GK1-EH
22 x 58	125 A	GK1-FB	GK1-FN	GK1-FC	GK1-FD	GK1-FF	GK1-FH

Fuse carrier assembly strips				
Number of fuse carriers to be assembled		2	3	4
Type	DF6	GK1-AP2	GK1-AP3	GK1-AP4
	GK1-E	GK1-AP3	GK1-AP5	GK1-AP6
	GK1-F	GK1-AP4	GK1-AP6	GK1-AP9

Blown fuse indicators (neon)		
For use on fuse carriers	DF6, GK1-C, D and E	
Operational voltage	80...400 V	GK1-AS

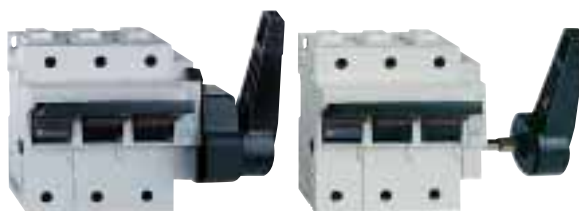
# Fuse carriers \_\_\_\_\_ 0 to 125 A



Fuse carriers					
Rated operational voltage with links, a.c. supply	690 V	690 V	690 V	690 V	
Maximum continuous current for ambient temperature $\leq 40^\circ\text{C}$					
with links	min cable $\varnothing/l_e$ (mm <sup>2</sup> /A)	6/32 or 4/25 or 2.5/16	4/25 or 2.5/16	10/50 or 6/40	32/125 or 25/100
with aM fuses (mm <sup>2</sup> /A)		6/32 or 4/22 or 2.5/20	4/22 or 2.5/20	10/50 or 6/35	32/125 or 25/100
with gG fuses (mm <sup>2</sup> /A)		6/32 or 2.5/20 or 1.5/16	2.5/20 or 1.5/16	10/40 or 6/32	25/100 or 16/80
Conforming to standards	NF EN 60947-3	●		●	●
	IEC 947-3	●		●	●
Product certifications		BV, UR		-	-
Fuse carrier type		LS1-D32	LS1-D323	GK1-E•	GK1-F•



Basic blocks						
Connection						
Rating	25 A	32 A	50 A		125 A	
Cartridge fuse size	10 x 38	10 x 38	14 x 51		22 x 58	
■ by spring terminals						
Number of early break contacts	-					
Single-phase protection device	Without	Without	Without	With	Without	With
3-pole	LS1-D323					
■ by screw clamp terminals or connectors						
Number of early break contacts	-	-	1		1	
3-pole		LS1-D32	GK1-EK	GK1-EV	GK1-FK	GK1-FV
4-pole		LS1-D32 + LA8-D324	GK1-EM	GK1-EY	GK1-FM	GK1-FY
Number of early break contacts			2		2	
3-pole			GK1-ES	GK1-EW	GK1-FS	GK1-FW
4-pole			GK1-ET	GK1-EX	GK1-FT	GK1-FX



Operators					
Handles					
	■ side			■ front	
Number of poles, 3 or 4					
For fuse carrier rating	125 A			32, 50, 125 A	
For mounting on	RH side		LH side		
	<b>GK1-AP07</b>		<b>GK1-AP08</b>		Fitted as standard
■ external					
For fuse carrier rating	32 A		50 A		125 A
For mounting on	RH or LH side		RH side	LH side	RH side   LH side
	<b>DK1-FB005</b>		<b>GK1-AP05</b>	<b>GK1-AP06</b>	<b>GK1-AP07</b>   <b>GK1-AP08</b>

Padlocking devices					
For fuse carrier rating	32 A		50 A		
Number of poles	3 or 4		3		4
Single-phase protection device	Without		Without	With	Without   With
	Integral		<b>GK1-AV07</b>	<b>GK1-AV08</b>	<b>GK1-AV08</b>   <b>GK1-AV09</b>

Links			
Tubular links			
Number of poles, 3 or 4			
For fuse carrier rating	32 A		125 A
Reference	<b>DK1-CB92</b> <sup>(1)</sup>		<b>DK1-FA92</b> <sup>(2)</sup>

(1) For use on a neutral circuit, the tubular link can be interlocked with special device LA8-D25906.

(2) 4-pole fuse carriers GK1-50 and 125 A 4 are fitted with an interlocked neutral tubular link as standard.

Add-on blocks				
Contact blocks				
For use on	<b>LS1-D32</b>		<b>LS1-D323</b>	
Contact type	N/O + N/C		N/O + N/O	N/O + N/C   N/O + N/O
Instantaneous auxiliary contacts				
Mounting	front	<b>GV-AE11</b>	<b>GV-AE20</b>	<b>GV-AE113</b>   <b>GV-AE203</b>

# Switch- disconnector- fuses

## 0 to 1250 A model GS1



### Switch-disconnector-fuse switch bodies

■ for use with NF C or DIN fuses

Number of poles	3	3 + N <sup>(1)</sup>	3	4	3	4	3	4	3	
Switch rating	32 A		50 A		63 A		100 A		125 A	
Fuse size	10 x 38		14 x 51		00C <sup>(2)</sup>		22 x 58		22 x 58	
Type of operator:										
■ internal or external	RH or LH side and front		GS1-DD3	GS1-DD4						
	RH side				GS1-FD3	GS1-FD4	GS1-GD3	GS1-GD4	GS1-JD3	GS1-JD4
■ external	LH side				GS1-FG3	GS1-FG4	GS1-GG3	GS1-GG4	GS1-JG3	GS1-JG4
	front				GS1-F3	GS1-F4	GS1-G3	GS1-G4	GS1-J3	GS1-J4
■ internal and external	front									

■ for use with BS fuses

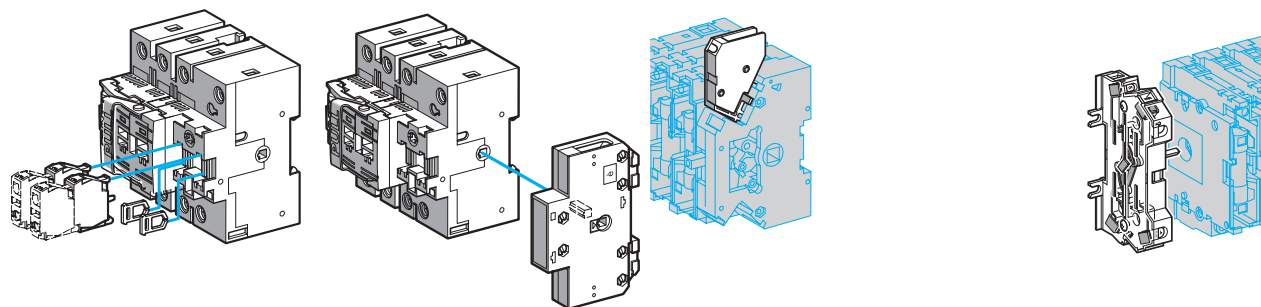
Switch rating	32 A		63 A		100 A		160 A			
Fuse size	A1		A2-A3		A4 Ø ≤ 31 mm		A4		B1-B2	
Type of operator:										
■ internal or external	RH or LH side and front		GS1-DDB3	GS1-DDB4						
■ RH side					GS1-GBR3	GS1-GBR4	GS1-JBR3	GS1-JBR4	GS1-LLBR3	GS1-LLBR4
■ external	front									
■ internal and external	front		GS1-DB3	GS1-DB4	GS1-GB3	GS1-GB4	GS1-JB3	GS1-JB4	GS1-LLB3	GS1-LLB4

(1) N = Switched Neutral

(2) Fuses for German market

### Auxiliary "blown fuse" signalling contacts for use with NF C or DIN fuses

Contact type	1 <sup>st</sup> C/O					
Switch rating	50 A		100 and 125 A		160 A	
Fuse size	14 x 51		22 x 58		T0	
Number of poles	3	4	3	4	3	4
	GS1-AF13	GS1-AF14	GS1-AF23	GS1-AF24	GS1-AF33	GS1-AF34



### Auxiliary early break and/or signalling contacts

Switch rating	32 A				50...400 A		630...1250 A		50...400 V	
Contact type	1 N/O	1 N/C	1 C/O	2 C/O	1 C/O	2 C/O	1 C/O	2 C/O	1 N/C + 1 N/O	2 N/C + 2 N/O
Standard contacts	GS1-AM110	GS1-AM101	GS1-AM111	GS1-AM211	GS1-AM1	GS1-AM2	GS1-AM3	GS1-AM4	GS1-AN11	GS1-AN22
Contacts with test facility									GS1-ANT11	GS1-ANT22





4	3	4	3	4	3	4	3	4	3	4	3	4	3	4			
			160 A			250 A			400 A			630 A		1250 A			
Size 00			Size 0			Size 00			Size 1			Size 2		Size 3		Size 4	
GS1-KD4	GS1-KKD3	GS1-KKD4	GS1-LD3	GS1-LD4	GS1-LLD3	GS1-LLD4	GS1-ND3	GS1-ND4	GS1-QQD3	GS1-QQD4	GS1-SD3	GS1-SD4	GS1-VD3	GS1-VD4			
GS1-KG4	GS1-KKG3	GS1-KKG4	GS1-LG3	GS1-LG4	GS1-LLG3	GS1-LLG4	GS1-NG3	GS1-NG4	GS1-QQG3	GS1-QQG4							
GS1-K4	GS1-KK3	GS1-KK4	GS1-L3	GS1-L4	GS1-LL3	GS1-LL4	GS1-N3	GS1-N4	GS1-QQ3	GS1-QQ4	GS1-S3	GS1-S4	GS1-V3	GS1-V4			
200 A			250 A			315 A			400 V			630 A		800 A		1250 A	
B1-B2			B1...B3			B1...B3			B1...B4			C1-C2		C1...C3		D1	
GS1-LBR4	GS1-MMBR3	GS1-MMBR4	GS1-NBR3	GS1-NBR4	GS1-PPBR3	GS1-PPBR4	GS1-QQBR3	GS1-QQBR4	GS1-SBR3	GS1-SBR4	GS1-TBR3	GS1-TRB4	GS1-VRB3	GS1-VRB4			
GS1-LB4	GS1-MMB3	GS1-MMB4	GS1-NB3	GS1-NB4	GS1-PPB3	GS1-PPB4	GS1-QQB3	GS1-QQB4	GS1-SB3	GS1-SB4	GS1-TB3	GS1-TB4	GS1-VB3	GS1-VB4			
										2 <sup>nd</sup> C/O							
250 and 400 A		630 A		1250 A		50...400 A		630...1250 A									
T1 and T2		T3		T4		-		-									
3	4	3	4	3	4	3	4	3	4	3	4	3	4				
GS1-AF43	GS1-AF44	GS1-AF63	GS1-AF64	GS1-AF73	GS1-AF74	GS1-AF	GS1-AF	GS1-AFF	GS1-AFF								

# Thermal overload relays

## 0.1 to 140 A model d



### Thermal overload relays, model d

adjustable from 0.1 to 140 A

Compensated relays with manual or automatic reset, with relay trip indicator, for a.c. or d.c.

	Relay setting range	Fuses to be used with selected relay			With contactor	Reference
		aM	gG	BS88		
<b>Class 10 A</b>	0.10...0.16 A	0.25 A	2 A	-	LC1-D09...D38	<b>LRD-01</b>
	0.16...0.25 A	0.5 A	2 A	-	LC1-D09...D38	<b>LRD-02</b>
	0.25...0.40 A	1 A	2 A	-	LC1-D09...D38	<b>LRD-03</b>
	0.40...0.63 A	1 A	1.6 A	-	LC1-D09...D38	<b>LRD-04</b>
	0.63...1 A	2 A	4 A	-	LC1-D09...D38	<b>LRD-05</b>
	1...1.7 A	2 A	4 A	6 A	LC1-D09...D38	<b>LRD-06</b>
	1.6...2.5 A	4 A	6 A	10 A	LC1-D09...D38	<b>LRD-07</b>
	2.5...4 A	6 A	10 A	16 A	LC1-D09...D38	<b>LRD-08</b>
	4...6 A	8 A	16 A	16 A	LC1-D09...D38	<b>LRD-10</b>
	5.5...8 A	12 A	20 A	20 A	LC1-D09...D38	<b>LRD-12</b>
	7...10 A	12 A	20 A	20 A	LC1-D09...D38	<b>LRD-14</b>
	9...13 A	16 A	25 A	25 A	LC1-D12...D38	<b>LRD-16</b>
	12...18 A	20 A	35 A	32 A	LC1-D18...D38	<b>LRD-21</b>
	16...24 A	25 A	50 A	50 A	LC1-D25...D38	<b>LRD-22</b>
	23...32 A	40 A	63 A	63 A	LC1-D25...D38	<b>LRD-32</b>
	30...38 A	50 A	80 A	80 A	LC1-D32 and D38	<b>LRD-35</b>
	17...25 A	25 A	50 A	50 A	LC1-D40...D95	<b>LRD-3322</b>
	23...32 A	40 A	63 A	63 A	LC1-D40...D95	<b>LRD-3353</b>
	30...40 A	40 A	100 A	80 A	LC1-D40...D95	<b>LRD-3355</b>
	37...50 A	63 A	100 A	100 A	LC1-D40...D95	<b>LRD-3357</b>
	48...65 A	63 A	100 A	100 A	LC1-D50...D95	<b>LRD-3359</b>
	55...70 A	80 A	125 A	125 A	LC1-D50...D95	<b>LRD-3361</b>
	63...80 A	80 A	125 A	125 A	LC1-D65 and D95	<b>LRD-3363</b>
	80...104 A	100 A	160 A	160 A	LC1-D80 and D95	<b>LRD-3365</b>
80...104 A	125 A	200 A	160 A	LC1-D115 and D150	<b>LRD-4365</b>	
95...120 A	125 A	200 A	200 A	LC1-D115 and D150	<b>LRD-4367</b>	
110...140 A	160 A	250 A	200 A	LC1-D150	<b>LRD-4369</b>	
80...104 A	100 A	160 A	160 A	(1)	<b>LRD-33656</b>	
95...120 A	125 A	200 A	200 A	(1)	<b>LRD-33676</b>	
110...140 A	160 A	250 A	200 A	(1)	<b>LRD-33696</b>	
<b>Class 20 A</b>	6 A	10 A	16 A		LC1-D09...D32	<b>LRD-1508</b>
	4...6 A	8 A	16 A	16 A	LC1-D09...D32	<b>LRD-1510</b>
	5.5...8 A	12 A	20 A	20 A	LC1-D09...D32	<b>LRD-1512</b>
	7...10 A	16 A	20 A	25 A	LC1-D09...D32	<b>LRD-1514</b>
	9...13 A	16 A	25 A	25 A	LC1-D12...D32	<b>LRD-1516</b>
	12...18 A	25 A	35 A	40 A	LC1-D18...D32	<b>LRD-1521</b>
	17...25 A	32 A	50 A	50 A	LC1-D25 and D32	<b>LRD-1522</b>
	23...28 A	40 A	63 A	63 A	LC1-D25 and D32	<b>LRD-1530</b>
	25...32 A	40 A	63 A	63 A	LC1-D25 and D32	<b>LRD-1532</b>
	17...25 A	32 A	50 A	50 A	LC1-D40...D95	<b>LR2-D3522</b>
	23...32 A	40 A	63 A	63 A	LC1-D40...D95	<b>LR2-D3553</b>
	30...40 A	50 A	100 A	80 A	LC1-D40...D95	<b>LR2-D3555</b>
	37...50 A	63 A	100 A	100 A	LC1-D50...D95	<b>LR2-D3557</b>
	48...65 A	80 A	125 A	100 A	LC1-D50...D95	<b>LR2-D3559</b>
	55...70 A	100 A	125 A	125 A	LC1-D65...D95	<b>LR2-D3561</b>
	63...80 A	100 A	160 A	125 A	LC1-D80 and D95	<b>LR2-D3563</b>

(1) Independent mounting

Screw clamp terminal connections or connectors. For spring terminal connections on LRD-01 to LRD-22, add 3 to the end of the reference. Example: LRD-01 becomes LRD-013.

For lug-clamp connections, add 6 to the end of the reference. Example: LRD-01 becomes LRD-016.

For thermal overload relays for use with class 10 A unbalanced loads, with connection by screw clamp terminals, change the prefix in the references above from LRD (except LRD-4\*\*\*) to LR3-D. Example LRD-01 becomes LR3-D01.

# Thermal overload relays

## 0.11 to 11.5 A model k



### Thermal overload relays, model k adjustable from 0.11 to 12 A

Connection by screw clamp terminals, direct mounting on contactors LC1-K, manual or automatic reset

Relay setting range	Fuses to be used with selected relay			Reference
	aM	gG	BS88	
Class 10 A				
0.11...0.16 A	0.25 A	0.5 A	-	LR2-K0301
0.16...0.23 A	0.25 A	0.5 A	-	LR2-K0302
0.23...0.36 A	0.5 A	1 A	-	LR2-K0303
0.36...0.54 A	1 A	1.6 A	-	LR2-K0304
0.54...0.8 A	1 A	2 A	-	LR2-K0305
0.8...1.2 A	2 A	4 A	6 A	LR2-K0306
1.2...1.8 A	2 A	6 A	6 A	LR2-K0307
1.8...2.6 A	2 A	6 A	10 A	LR2-K0308
2.6...3.7 A	4 A	10 A	16 A	LR2-K0310
3.7...5.5 A	6 A	16 A	16 A	LR2-K0312
5.5...8 A	8 A	20 A	20 A	LR2-K0314
8...11.5 A	10 A	25 A	20 A	LR2-K0316

Thermal overload relays for use on class 10 A unbalanced loads: for above references LR2-K0305 to LR2-K0316 only, replace the prefix LR2 with LR7.

Example LR7-K0310.

### Accessories

#### Prewiring kit

Allowing direct connection of the N/C contact of relay LRD-01...35 or LR3-D01... D35 to the contactor	For use on	
	LC1-D09...D18	LAD-7C1
	LC1-D25...D38	LAD-7C2

#### Terminal blocks (1)

For clip-on mounting on 35 mm mounting rail (AM1-DP200) or screw fixing	LRD-01...35 and LR3-D01...D35	LAD-7B10
	LRD-3***, LR3-D3***, LRD-35**	LA7-D3064 <sup>(2)</sup>
For independent mounting of the relay	LR2-K****	LA7-K0064

#### Terminal block adapter

For mounting a relay beneath an LC1-D115 or D150 contactor	LRD-3***, LR3-D3***, LRD-35**	LA7-D3058
--	-------------------------------	-----------

#### Stop or electrical reset

Remote <sup>(3)</sup>	LRD-01...35 and LR3-D01...D35	LAD-703 <sup>(4)</sup>
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#### Tripping or electrical reset device

Remote <sup>(3)</sup>	All relays except LRD-01...35 and LR3-D01...D35	LA7-D03 <sup>(4)</sup>
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(1) Terminal blocks are supplied with terminals protected against direct finger contact and screws in the open "ready-to-tighten" position.

(2) To order a terminal block for connection by lug-clamps, the reference becomes LA7-D30646.

(3) The time for which the coil of remote tripping or electrical resetting device LA7-D03 or LAD-703 can remain energised depends on its rest time: 1 s pulse duration with 9 s rest time; maximum pulse duration of 20 s with a rest time of 300 s. Minimum pulse time 200 ms.

(4) Reference to be completed by adding the code indicating the control circuit voltage.

### Standard control circuit voltages

#### ~ supply

Volts	12	24	48	96	110	220/230	380/400	415/440
50/60 Hz. Consumption, inrush and sealed < 100 VA	-	B	E	-	F	M	Q	N

#### = supply

Consumption, inrush and sealed < 100 W	J	B	E	DD	F	M	-	-
--	---	---	---	----	---	---	---	---

# Electronic thermal overload relays

## 60 to 630 A model LR9



For use with contactor	LC1-D	LC1-F
Motor current	60...150 A	30...630 A
<b>Basic reference, to be completed</b>	<b>LR9-D</b>	<b>LR9-F</b>

Relay setting range	Fuse to be used with selected relay		For mounting beneath contactor LC1-	Compensated and differential		or not with alarm Class 10 or 20
	aM	gG		Class 10	Class 20	
60...100	100	160	D115 and D150	<b>LR9-D5367</b>	<b>LR9-D5567</b>	
90...150	160	250	D115 and D150	<b>LR9-D5369</b>	<b>LR9-F5569</b>	
30...50	50	80	F115...F185	<b>LR9-F5357</b>	<b>LR9-F5557</b>	<b>LR9-F57</b>
48...80	80	125	F115...F185	<b>LR9-F5363</b>	<b>LR9-F5563</b>	<b>LR9-F63</b>
60...100	100	200	F115...F185	<b>LR9-F5367</b>	<b>LR9-F5567</b>	<b>LR9-F67</b>
90...150	160	250	F115...F185	<b>LR9-F5369</b>	<b>LR9-F5569</b>	<b>LR9-F69</b>
132...220	250	315	F185...F400	<b>LR9-F5371</b>	<b>LR9-F5571</b>	<b>LR9-F71</b>
200...330	400	500	F225...F500	<b>LR9-F7375</b>	<b>LR9-F7575</b>	<b>LR9-F75</b>
300...500	500	800	F225...F500	<b>LR9-F7379</b>	<b>LR9-F7579</b>	<b>LR9-F79</b>
380...630	630	800	F400...F630 and F800	<b>LR9-F7381</b>	<b>LR9-F7581</b>	<b>LR9-F81</b>

Accessories		
Remote control		
Function	Reset	Stop and/or Reset
Electrical reset <sup>(1)</sup>	<b>LA7-D03</b> <sup>(2)</sup>	
Reset by flexible cable (length 0.5 m)	<b>LA7-D305</b>	
Adapter for door interlock mechanism		<b>LA7-D1020</b>
Operating head for pushbutton		
Spring return	<b>ZA2-BL639</b>	<b>ZA2-BL432</b>
Rod with snap-off end		
Adjustable from 17 to 120 mm	<b>ZA2-BZ13</b>	
Insulated terminal blocks		
For relays LR9-F5•57, F5•63, F5•67, F5•69, F57, F63, F67 and F69	Set of 2 blocks	
	<b>LA9-F103</b>	

(1) The time for which the coil of remote electrical reset device LA7-D03 can remain energised depends on its rest time: 1 s pulse with 9 s rest time; 5 s pulse duration with 30 s rest time; 10 s pulse duration with 90 s rest time: maximum pulse duration 20 s with rest time of 300 s. Minimum pulse time: 200 ms.

(2) Reference to be completed by adding the coil voltage code, see page 27

# Electronic protection relays for use with PTC thermistor probes

## 0 to 800 A models LT3, LT6



For use with contactor	LC1-D or LC1-F	LC1-D or LC1-F
Motor current	No limit	1...5 A
<b>Basic reference, to be completed</b>	<b>LT3-S</b>	<b>LT6-POM05FM</b>

3-pole multifunction protection relays		
Operational current	A	
		0.2...1. 1...5
		5...25
		<b>LT6-POM005FM</b>
		<b>LT6-POM025FM</b>

Protection units with automatic reset with thermistor short-circuit detection			
■ without fault memory			
Connection	Voltage	Output contact	Reference
by cage connectors	~ 50/60 Hz	115 V	N/C
		230 V	N/C
	≡	24 V	N/C
			<b>LT3-SE00F</b>
			<b>LT3-SE00M</b>
			<b>LT3-SE00F</b>
On front panel: fault and voltage signalling indicator			
	~ 50/60 Hz	115/230 V	N/C + N/O
	≡	24/48 V	N/C + N/O
	~ 50/60 Hz or ≡	24...230 V	2 C/O
			<b>LT3-SA00M</b>
			<b>LT3-SA00ED</b>
			<b>LT3-SA00MW</b>
■ with fault memory			
On front panel: fault and voltage signalling indicator, Test and Reset button			
	~ 50/60 Hz	400 V	N/C + N/O
		24/48 V	N/C + N/O
		115/230 V	N/C + N/O
	≡	24/48 V	N/C + N/O
	~ 50/60 Hz or ≡	24...230 V	2 C/O
			<b>LT3-SM00V</b>
			<b>LT3-SM00E</b>
			<b>LT3-SM00M</b>
			<b>LT3-SM00ED</b>
			<b>LT3-SM00MW</b>

Accessories								
PTC thermistor probes for LT3 and LT6 relays								
Normal operating temperature (NOT)	90 °C	110 °C	120 °C	130 °C	140 °C	150 °C	160 °C	170 °C
<b>Integrated triple probes</b>	<b>DA1-TT090</b>	<b>DA1-TT110</b>	<b>DA1-TT120</b>	<b>DA1-TT130</b>	<b>DA1-TT140</b>	<b>DA1-TT150</b>	<b>DA1-TT160</b>	<b>DA1-TT170</b>
Normal operating temperature (NOT)		60 °C	70 °C	80 °C	90 °C	100 °C		
<b>Surface probes</b>	<b>DA1-TS060</b>	<b>DA1-TS070</b>	<b>DA1-TS080</b>	<b>DA1-TS090</b>	<b>DA1-TS100</b>			
Configuration software for LT6 relays								
Languages: English, French, German, Italian, Spanish	Kit <sup>(1)</sup>				Diskette			
For use with all relay sizes	<b>LA9-P620</b>	<b>LA9-P621</b>						
Current transformers for LT6 relays								
Operational current	primary	100 A	400 A		800 A			
	secondary	1 A	1 A		1 A			
		<b>LT6-CT1001</b>	<b>LT6-CT4001</b>		<b>LT6-CT8001</b>			

(1) Comprising 2 x 3" 1/2 diskettes, 1 x 2 m connection cable with 2 SUB-D 9-pin connectors (female-female)

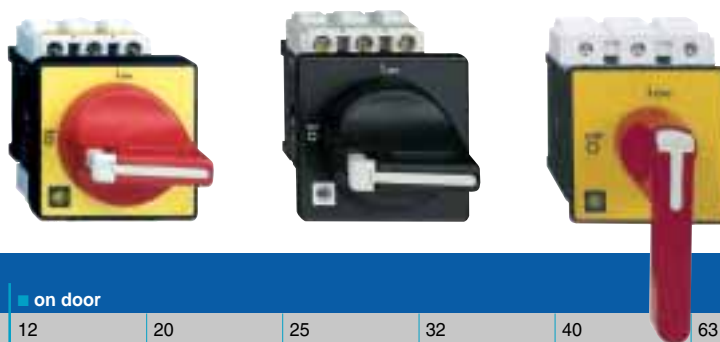
# Protection components

## 12 to 175 A Switch disconnectors mini Vario and Vario



### Mini-Vario switch disconnectors

Mounting	■ on door		■ at back of an enclosure	
Switch disconnector rating (A)	12	20	12	20
Red handle, padlockable with up to 3 padlocks (Ø 4 to Ø 8 shank)				
Yellow front plate 60 x 60 mm Ø 22.5 mm fixing	VCDN-12	VCDN-20	VCCDN-12	VCCDN-20
Black handle, padlockable with up to 3 padlocks (Ø 4 to Ø 8 shank)				
Black front plate 60 x 60 mm Ø 22.5 mm fixing	VBDN-12	VBDN-20		



### Vario switch disconnectors

Mounting	■ on door							
Switch disconnector rating (A)	12	20	25	32	40	63	80	
Red handle, padlockable with up to 3 padlocks (Ø 4 to Ø 8 shank)								
Yellow front plate 60 x 60 mm Ø 22.5 mm fixing	VCD-02	VCD-01	VCD-0	VCD-1				
4 screw fixing	VCF-02	VCF-01	VCF-0	VCF-1				
Long red handle, padlockable with up to 3 padlocks (Ø 4 to Ø 8 shank)								
Yellow front plate 90 x 90 mm 4 screw fixing					VCF-2	VCF-3	VCF-4	
Black handle, padlockable with up to 3 padlocks (Ø 4 to Ø 8 shank)								
Black front plate 60 x 60 mm Ø 22.5 mm fixing	VBD-02	VBD-01	VBD-0	VBD-1	VBD-2			
4 screw fixing	VBF-02	VBF-01	VBF-0	VBF-1	VBF-2	VBF-3	VBF-4	
Long black handle, padlockable with up to 3 padlocks (Ø 4 to Ø 8 shank)								
Black front plate 90 x 90 mm 4 screw fixing								



### Add-on modules

Main pole modules							
Rating (A)	12	20	25	32	40	63	80
	VZ-02	VZ-01	VZ-0	VZ-1	VZ-2	VZ-3	VZ-4
Neutral pole module with early make and late break contacts							
Rating (A)	12 to 40		63 and 80		125 and 175		
	VZ-11		VZ-12		VZ-13		
Earthing module							
	VZ-14		VZ-15		VZ-16		
Auxiliary contact block modules							
Contact types	N/O + N/C				N/O + N/O		
	VZ-7				VZ-20		



■ at back of an enclosure										
125	175	12	20	25	32	40	63	80	125	175
		VCCD-02	VCCD-01	VCCD-0	VCCD-1					
		VCCF-02	VCCF-01	VCCF-0	VCCF-1					
						VCCF-2	VCCF-3	VCCF-4		
VCCF-5	VCCF-6								VCF-5	VCF-6
VCF-5	VCF-6									

# TeSys \_\_\_\_\_ 0.06 to 15 kW combination motor starters



## D.O.L. starters

		with circuit-breaker		with fuse protection
Level of service	Coordination:	Type 1		Type 2
Power at 400 V	Up to:	5.5 kW	15 kW	37 kW
Type of components		Combination automatic motor starter with overload protection incorporated in the circuit-breaker		Fuse carrier + plate-mounted contactor
<b>Basic reference, to be completed</b>		<b>GV2-ME</b>	<b>GV2-DM</b>	<b>GV2-DP</b>



## Starters GV2-ME

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3 (kW)					Setting range of thermal trips	Fixed magnetic tripping current	For customer assembly		Factory assembled	
400/415 V	440 V	500 V	Motor circuit-breaker	Contactor			Non-reversing	Reversing		
0.37	0.37	0.37	GV2-ME06	LC1-K06	1...1.6	22.5	GV2-ME06	LC1-K06	GV2-ME06K1**	GV2-ME06K2**
0.55	0.55	0.55								
-	-	0.75								
0.75	0.75	-	GV2-ME07	LC1-K06	1.6...2.5	33.5	GV2-ME07	LC1-K06	GV2-ME07K1**	GV2-ME07K2**
-	1.1	1.1								
1.1	-	1.5	GV2-ME08	LC1-K06	2.5...4	51	GV2-ME08	LC1-K06	GV2-ME08K1**	GV2-ME08K2**
1.5	1.5	2.2								
2.2	2.2	-	GV2-ME10	LC1-K06	4...6.3	78	GV2-ME10	LC1-K06	GV2-ME10K1**	GV2-ME10K2**
-	-	3								
3	-	4	GV2-ME14	LC1-K09	6...10	138	GV2-ME14	LC1-K09	GV2-ME14K1**	GV2-ME14K2**
4	4	5.5								
5.5	5.5	7.5	GV2-ME16	LC1-K12	9...14	170	GV2-ME16	LC1-K12	GV2-ME16K1**	GV2-ME16K2**

## Standard control circuit voltages (for other voltages, please consult your Regional Sales Office)

Volts	24	110	220/230	230	230/240	380/400
~ 50...400 Hz	<b>B7</b>	<b>F7</b>	<b>M7</b>	<b>P7</b>	<b>U7</b>	<b>Q7</b>
== (1)	<b>BW3</b>	-	-	-	-	-

(1) Low consumption coil (1.5 W), wide range (0.7...1.3 Uc) and with integral suppression device as standard.





### D.O.L. starters GV2-DM and GV2-DP

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3 (kW)					Setting range of thermal trips	Fixed magnetic tripping current	For customer assembly		Non-reversing	Reversing
400/415 V			440 V	500 V		13 I <sub>rth</sub>	Motor circuit-breaker	Contactor	Factory assembled Basic reference, to be completed with code indicating control circuit voltage	
0.06	0.06	-			0.16...0.25	2.4	GV2-ME02 GV2-P02	LC1-D09**	<b>GV2-DM102**</b> <b>GV2-DP102**</b>	<b>GV2-DM202**</b> <b>GV2-DP202**</b>
0.09	0.09	-			0.25...0.40	5	GV2-ME03 GV2-P03	LC1-D09**	<b>GV2-DM103**</b> <b>GV2-DP103**</b>	<b>GV2-DM203**</b> <b>GV2-DP203**</b>
-	0.12	-			0.40...0.63	8	GV2-ME04 GV2-P04	LC1-D09**	<b>GV2-DM104**</b> <b>GV2-DP104**</b>	<b>GV2-DM204**</b> <b>GV2-DP204**</b>
0.12	-	-			0.63...1	13	GV2-ME05 GV2-P05	LC1-D09**	<b>GV2-DM105**</b> <b>GV2-DP105**</b>	<b>GV2-DM205**</b> <b>GV2-DP205**</b>
0.18	0.18	-			1...1.6	22.5	GV2-ME06 GV2-P06	LC1-D09**	<b>GV2-DM106**</b> <b>GV2-DP106**</b>	<b>GV2-DM206**</b> <b>GV2-DP206**</b>
0.25	0.25	-			1.6...2.5	33.5	GV2-ME07 GV2-P07	LC1-D09**	<b>GV2-DM107**</b> <b>GV2-DP107**</b>	<b>GV2-DM207**</b> <b>GV2-DP207**</b>
0.37	0.37	-			2.5...4	51	GV2-ME08 GV2-P08	LC1-D09**	<b>GV2-DM108**</b> <b>GV2-DP108**</b>	<b>GV2-DM208**</b> <b>GV2-DP208**</b>
-	-	0.37			4...6.3	78	GV2-ME10 GV2-P10	LC1-D09**	<b>GV2-DM110**</b> <b>GV2-DP110**</b>	<b>GV2-DM210**</b> <b>GV2-DP210**</b>
0.55	0.55	0.55			6...10	138	GV2-ME14 GV2-P14	LC1-D09**	<b>GV2-DM114**</b> <b>GV2-DP114**</b>	<b>GV2-DM214**</b> <b>GV2-DP214**</b>
-	-	0.75			9...14	170	GV2-ME16 GV2-P16	LC1-D12** LC1-D25**	<b>GV2-DM116**</b> <b>GV2-DP116**</b>	<b>GV2-DM216**</b> <b>GV2-DP216**</b>
-	-	0.75			13...18	223	GV2-ME20 GV2-P20	LC1-D18** LC1-D25**	<b>GV2-DM120**</b> <b>GV2-DP120**</b>	<b>GV2-DM220**</b> <b>GV2-DP220**</b>
0.75	0.75	-			17...23	327	GV2-ME21 GV2-P21	LC1-D25**	<b>GV2-DM121**</b> <b>GV2-DP121**</b>	<b>GV2-DM221**</b> <b>GV2-DP221**</b>
-	1.1	1.1			20...25	327	GV2-ME22 GV2-P22	LC1-D25**	<b>GV2-DM122**</b> <b>GV2-DP122**</b>	<b>GV2-DM222**</b> <b>GV2-DP222**</b>
1.1	-	1.5			24...32	416	GV2-ME32 GV2-P32	LC1-D32**	<b>GV2-DM132**</b> <b>GV2-DP132**</b>	<b>GV2-DM232**</b> <b>GV2-DP232**</b>
1.5	1.5	2.2								
2.2	2.2	-								
-	3	3								
3	-	4								
4	4	5.5								
5.5	5.5	7.5								
-	7.5	9								
7.5	9	-								
9	11	11								
11	-	15								
15	15	18.5								

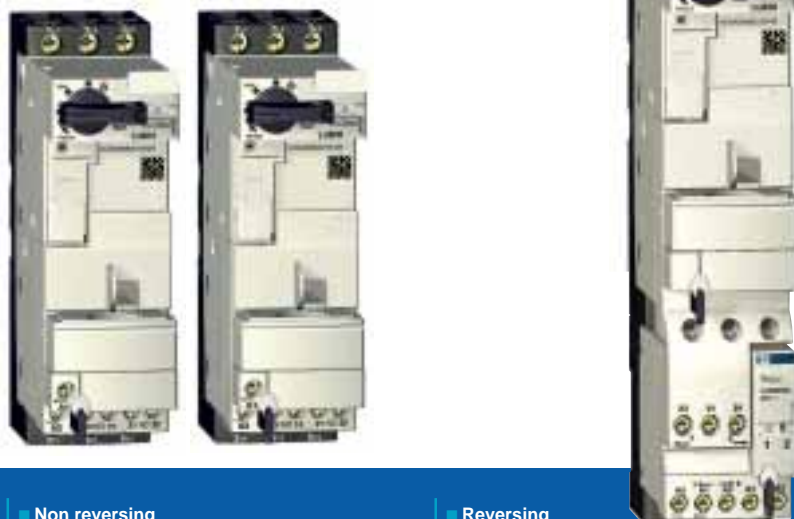
#### Standard control circuit voltages (for other voltages, please consult your Regional Sales Office)

Volts	24	220	230
~ 50...400 Hz	<b>B7</b>	<b>M7</b>	<b>P7</b>
☰ <sup>(1)</sup>	<b>BD</b>	-	-

(1) Low consumption coil (1.5 W), wide range (0.7...1.3 Uc) with integral suppression device as standard.

# TeSys starter-controller

## 0 to 32 A Model U



Power base for D.O.L. starter	■ Non reversing			■ Reversing		
	Connection by screw clamp terminals					
Rated operational voltage	≤ 440 V	≤ 500 V	≤ 690 V	≤ 440 V	≤ 500 V	≤ 690 V
Power	12 A	12 A	9 A	12 A	12 A	9 A
	<b>LUB-12</b>			<b>LU2B-12**</b>		
Power	32 A	23 A	21 A	32 A	23 A	21 A
	<b>LUB-32</b>			<b>LU2B-32**</b>		



Add-on blocks						
Contact blocks						
Signalling		Contact				
■ status of starter-controller power poles		N/O (53-54)		N/C (95-96)		N/O (97-98)
■ fault		N/C (95-96)		N/O (17-18)		N/O (97-98)
■ control handle in position O		N/O (17-18)		N/C (95-96)		N/O (97-98)
Connection	Item	1	1	1	1	1
■ screw clamp terminals	1 + 2	<b>LUA1-D11</b>		<b>LUA1-C11</b>		<b>LUA1-C20</b>
■ without connections	1	<b>LUA1-D110</b>		<b>LUA1-C110</b>		<b>LUA1-C200</b>
Auxiliary contact blocks						
		N/O	N/C	N/O	N/C	N/O
		2	-	1	1	-
■ screw clamp terminals	3	<b>LUF-N20</b>		<b>LUF-N11</b>		<b>LUF-N02</b>



Modules	
■ parallel wiring	<b>LUF-C00</b>
■ alarm	<b>LUF-W10</b>
■ communication	As-i
	<b>ASILUF-C5</b>
■ indication of motor load	Modbus
	<b>LUL-C031</b>
	4...20 mA
	<b>LUF-V2</b>
■ fault differentiation and reset	manual reset
	<b>LUF-DH20</b>
	automatic reset
	<b>LUF-DA10</b>





Control units					Class 10		
■ standard							
Standard power ratings of 3-phase motors 50/60 Hz in AC-3			Setting range	Clip-in mounting on power base			
400/415 V	500 V	690 V					
0.09	-	-	0.15...0.6	12 and 32	LUCA-X6**		
0.25	-	-	0.35...1.4	12 and 32	LUCA-1X**		
1.5	2.2	3	1.25...5	12 and 32	LUCA-05**		
5.5	5.5	9	3...12	12 and 32	LUCA-12**		
7.5	9	15	4.5...18	32	LUCA-18**		
15	15	18.5	8...32	32	LUCA-32**		
■ advanced					Class 10		Class 20
For motor type					■ 3-phase	■ single-phase	3-phase
0.09	-	-	0.15...0.6	12 and 32	LUCB-X6**	LUCC-X6**	LUCD-X6**
0.25	-	-	0.35...1.4	12 and 32	LUCB-1X**	LUCC-1X**	LUCD-1X**
1.5	2.2	3	1.25...5	12 and 32	LUCB-05**	LUCC-05**	LUCD-05**
5.5	5.5	9	3...12	12 and 32	LUCB-12**	LUCC-12**	LUCD-12**
7.5	9	15	4.5...18	32	LUCB-18**	LUCC-18**	LUCD-18**
15	15	18.5	8...32	32	LUCB-32**	LUCC-32**	LUCD-32**
■ multifunction					Class 5 to 35		
0.09	-	-	0.15...0.6	12 and 32	LUCM-X6BL		
0.25	-	-	0.35...1.4	12 and 32	LUCM-1XBL		
1.5	2.2	3	1.25...5	12 and 32	LUCM-05BL		
5.5	5.5	9	3...12	12 and 32	LUCM-12BL		
7.5	9	15	4.5...18	32	LUCM-18BL		
15	15	18.5	8...32	32	LUCM-32BL		

Basic reference, to be completed by adding the voltage code <sup>(1)</sup>

Parameter entry, monitoring of parameter values and consultation of logs are carried out:

- either on the front panel, using the built-in display window/ keypad,
- or via an operator terminal,
- or via a PC or a PDA with PowerSuite software,
- or remotely, via a Modbus communication bus.

Programming of the product via the keypad requires a  $\sim$  24 V auxiliary power supply.



Standard control circuit voltages (for other voltages, please consult your Regional Sales Office)			
Volts	24	48...72	110...240
$\sim$	BL	-	-
$\sim$	B	-	-
$\sim$ or $\sim$	-	ES <sup>(1)</sup>	FU <sup>(2)</sup>

(1)  $\sim$  48...72 V,  $\sim$  48 V. (2)  $\sim$  110...220 V,  $\sim$  110...240 V.

# TeSys controller \_\_\_\_\_ 0 to 800 A Model U



Above 32 A, the model U controller provides a motor starter management solution identical to that provided by TeSys model U starter-controllers.

Used in conjunction with a short-circuit protection device and a contactor, it provides a motor starter whose functions are the same as those of a TeSys model U starter-controller and, in particular, provides motor starter overload protection and control functions. It consists of a control unit whose adjustment range is compatible with the secondary of current transformers, plus a control base which also allows fitment of a function module or a communication module.

It requires a  $\approx$  24 V external power supply.

## Control bases

Current transformers (auxiliary supply voltage  $\approx$  24 V.)

Connection	screw	
Control	screw	LUT-M



## Control units

For 3-phase motors

	Class 10	Class 20	Class 5 to 30
Setting range	0.35...1.05		
■ advanced	LUCB-T1BL	LUCD-T1BL	
■ multifunction			LUCM-T1BL



## Accessories

Module		
■ alarm	LUF-W10	
■ communication	As-i	Modbus
	ASILUF-C5	LUL-C031
■ indication of motor load		4...20 mA
		LUF-V2
■ fault differentiation and reset	manual reset	automatic reset
	LUF-DH20	LUF-DA10

## Current transformers

Operational current		30	50	100	200	400	800
■ primary							
■ secondary	1	LUT-C0301	LUT-C0501	LUT-C1001	LUT-C2001	LUT-C4001	LUT-C8001

# Enclosed \_\_\_\_\_ 0.06 to 132 kW motor starters

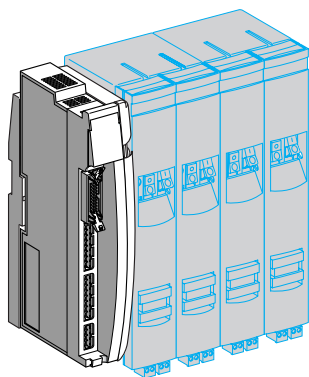


## Starters

		■ D.O.L.				
		■ standard				
Standard power ratings of 3-phase motors in category AC3 400/415 V		4...37 kW	0.06...45 kW	0.55...30 kW	0.37...5.5 kW	0.25...45 kW
Starters	manual	●	●	●	-	-
	auto	-	-	-	●	●
Isolating device	switch-disconnector-fuse	●	-	-	-	-
	circuit-breaker	-	●	●	●	-
	fuse carrier	-	-	-	-	-
Protection	short-circuit	-	●	●	●	-
	overload	-	●	●	●	●
Communication		-	-	-	-	-
<b>Basic reference</b>	Non reversing	V•F	GV2-ME	GV2-LC	LE1-GVME	LE1-M
		VCFN	GV3-CE	GV-NGC		LE1-D
	Reversing	V•FX				LE2-K
						LE2-D



					■ 2 stage	
	■ safety applications			■ AS-i bus	standard star-delta	
2.2...45 kW	0.06...11 kW	0.06...9 kW	0.06...9 kW	0.06...5.5 kW	5.5...132 kW	7.5...75 kW
-	●	-	-	-	-	-
●	-	●	●	●	●	●
-	-	●	-	-	-	-
-	●	●	●	●	-	-
●	-	-	-	-	-	●
●	●	●	●	●	-	●
●	●	●	●	●	●	●
-	-	-	-	●	-	-
LE4-K	GV2-ME	LG1-K	LG7-K	LF1-M	LE3-K	LE6-D
LE4-D		LG1-D	LG7-D	LF1-P	LE3-D	LE3-D
			LJ7-K	LF7-P	LE3-F	
LE8-K			LG8-K	LF2-M		
LE8-D			LJ8-K	LF2-P		
LE2-D				LF8-P		



Tego Power is a modular system which standardises and simplifies the implementation of motor starters with its prewired control and power circuits.

Installation of a motor starter is therefore quick, simple, safe and flexible, with no wires needed for connection. In addition, this system enables the motor starter to be customised at a later date, reduces maintenance time and optimises panel space by reducing the number of terminals and intermediate interfaces and the amount of ducting.

Quickfit technology for TeSys motor starter components with spring terminals is designed for use with model d contactors (9 to 32 A) and with GV2-ME motor circuit-breakers.

## Communication modules

### ■ with terminal block

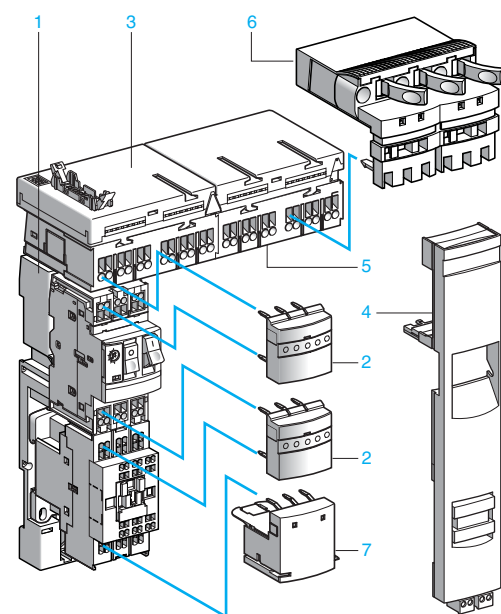
Number of HE10 connectors		-	2
Type of connection or bus:	screw terminals	<b>APP-1CV</b>	
	spring terminals	<b>APP-1CE</b>	

### ■ with connector

HE10		<b>APP-1CH</b>	
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### ■ via bus

AS-Interface		<b>APP-1CA32</b>	
Fipio		<b>APP-1CFI0</b>	<b>APP-1CFI2</b>
INTERBUS		<b>APP-1CIB0</b>	<b>APP-1CIB2</b>
INTERBUS optical			<b>APP-1CIB5</b>
Profibus DP		<b>APP-1CPF0</b>	<b>APP-1CPF2</b>
CANopen		<b>APP-1CCO0</b>	<b>APP-1CCO2</b>
DeviceNet		<b>APP-1CDN0</b>	<b>APP-1CDN2</b>



System using Quickfit technology, for TeSys motor starters with spring terminals.

The motor starters concerned are those formed by combining:

- GV2-ME circuit-breakers,
- with 9 to 25 A model d contactors (LC1).

Consisting of simple parts, Tego Power with Quickfit technology can be used to build motor starter assemblies up to 11.5 kW/400 V.

The main components which make up this range are:

#### ■ For the power circuit

- a power kit comprising, for each starter, a plate **1** for mounting the contactor and the circuit-breaker and two power connection modules **2**,
- a power splitter box **5** for 2 or 4 starters,
- an upstream terminal block **6** for a power supply up to 63 A (16 mm<sup>2</sup>),
- a downstream terminal block **7** for connection of the motor power supply cables and of the protection or earth cables (6 mm<sup>2</sup>).

#### ■ For the control circuit

- a control splitter box **3** for 2 or 4 starters, with control-command data on HE10 connector. The data on 4 or 8 starters can be fed back directly to the PLC via an 81/80 or 161/80 Telefast cable, or to a fieldbus module (AS-Interface, Fipio, CANopen, DeviceNet, INTERBUS, Profibus),
- a control circuit connection module **4** which plugs directly into the contactor and the circuit-breaker on each starter. This module concentrates the motor starter control-command data. It incorporates the circuit-breaker status data in the prewiring of the contactor control circuit.



## Basic components

### Assembly and power connection kit comprising:

■ 1 mounting plate LAD-311 for GV2-ME	
■ 2 power connection modules LAD-341	<b>LAD-352</b>

### Reversing kit:

- 1 busbar set and 1 mechanical interlock <sup>(5)</sup>

### Upstream terminal blocks

Application	Max. connection c.s.a.	
Power supply to 1 or 2 power splitter boxes or a power control splitter box	16 mm <sup>2</sup> <sup>(6)</sup>	<b>LAD-3B</b>

### Downstream terminal blocks

Connection of motor cables	6 mm <sup>2</sup>	<b>LAD-331</b>
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## Prewired power connections

### (control connection factory wired)

	Type of control-command connection on control system side	No. of I/O per starter	Extension by	No. of starters	
<b>Power splitter box, 60 A</b>	-	-	LAD-32•	2 4	<b>LAD-322</b> <b>LAD-324</b>
<b>Power (60 A) and control splitter box</b>	1 x HE 10 8I/8O	1I/1O <sup>(1)</sup>	APP 2R•E	4	<b>APP-2R4H1</b>
	1 x HE 10 16I and 1 x HE 10 8O	2I/1O <sup>(1)</sup>	up to 8 starters	4	<b>APP-2R4H2</b>
	Via module APP-1C••• <sup>(2)</sup>	-		2 4	<b>APP-2R2E</b> <b>APP-2R4E</b>
	Model d coil voltage	Type of coil control relay		Type of starter	
<b>Control connection module</b>	~ 12...240 V or ~ 24...125 V	Electromechanical <sup>(3)</sup>		D.O.L.	<b>APP-2D1</b>
(incorporating contact block GV-AE20)				Reversing	<b>APP-2D2</b>
	~ 24 V	Without relay <sup>(4)</sup>		D.O.L.	<b>APP-2D1D</b>
				Reversing	<b>APP-2D2D</b>

## Spare or replacement parts

	Type of control-command connection on control system side	No. of I/O per starter	No. of starters	
<b>Plate for mounting a</b>				
<b>GV2-M circuit-breaker</b>	-	-	1	<b>LAD-311</b>
<b>Power connection module</b>	-	-	1	<b>LAD-341</b>
<b>Control-command splitter boxes</b>	1 x HE 10 8I/8O	1I/1O	4	<b>APP-2R4H3</b>
	1 x HE 10 16I and 1 x HE 10 8O	2I/1O	4	<b>APP-2R4H4</b>
(single, for mounting on a power splitter box)	Via module APP-1C••• <sup>(2)</sup>	-	2 4	<b>APP-2R2C</b> <b>APP-2R4C</b>
<b>Replacement electromechanical relay</b>		-	1	<b>ABR-7S23</b>
(for control connection module)				

(1) Cables with 20-way Telefast HE 10 connector. (2) Connection to an APP-1C••• module via adapter APP-2CX. (3) Relay supplied mounted in the front panel of the control connection. (4) The use of model d low consumption contactors is recommended.

(5) The following are needed to build a model d reversing starter: 2 contactors LC1 D, 2 mounting plates LAD-311, 1 mechanical interlock LAD-9V2, 1 upstream power connection kit and 1 downstream connection kit: - upstream power connection kit LAD-9V10: installed in the Quickfit system with power connection module LAD-341 – downstream connection kit LAD-9V11: installed in the Quickfit system with outgoing terminal block LAD-331 (if LAD-331 is not used, replace LAD-9V11 with LAD-9V13).

(6) Cables with one end pre-crimped are available to allow fast connection. References: 1 set of 3 x 6 mm<sup>2</sup> cables (length 1 m LAD-3B061, length 2 m LAD-3B062 and length 3 m LAD-3B063), 1 set of 3 x 10 mm<sup>2</sup> cables (length 1 m LAD-3B101, length 2 m LAD-3B102 and length 3 m LAD-3B103), 1 set of 3 x 16 mm<sup>2</sup> cables (length 1 m LAD-3B161, length 2 m LAD-3B162 and length 3 m LAD-3B163).

# Lighting applications (AC5) components

Sodium vapour lamps															
■ low pressure															
	Non corrected							With parallel compensation							
P (W)	3-	55	90	135	150	180	200	35	55	90	135	150	180	200	
IB (A)	1.2	1.6	2.4	3.1	3.2	3.3	3.4	0.3	0.4	0.6	0.9	1	1.2	1.3	
C (μF)	-	-	-	-	-	-	-	17	17	25	36	36	36	36	LC1-
Max. number of lamps	6	5	3	2	2	2	2	-	-	-	-	-	-	-	K09
accordint to P (W), per contactor	10	7	5	3	3	3	3	40	30	-	-	-	-	-	D09, D12
	12	9	6	4	4	4	4	50	37	25	-	-	-	-	D18
	15	11	7	6	5	5	5	63	47	31	21	19	15	14	D25
	21	16	10	8	8	7	7	86	65	43	28	26	21	20	D32, D38
	27	20	13	10	10	10	9	110	82	55	36	33	27	25	D40
	35	26	17	13	13	12	12	140	105	70	46	42	35	32	D50, D65
	50	37	25	19	18	18	17	200	150	100	66	60	50	46	D80, D95
	100	75	50	38	36	36	34	400	300	200	132	120	100	92	D115, D150
	140	104	70	54	52	50	48	560	420	280	186	168	140	128	F185
	152	114	76	58	56	54	54	606	454	302	202	182	152	140	F225
	174	130	88	68	66	64	62	700	524	350	232	210	174	162	F265
	198	148	98	76	74	72	70	792	594	396	264	238	198	182	F330
	250	188	124	96	94	90	88	1002	752	502	334	300	250	252	F400
	338	254	168	130	126	122	118	1352	1014	676	450	406	338	312	F500
	496	372	248	192	186	180	174	1982	1488	992	660	594	496	458	F600, F800
■ high pressure															
P (W)	150	250	400	700	1000			150	250	400	700	1000			
IB (A)	1.9	3.2	5	8.8	12.4			0.84	1.4	2.2	3.9	5.5			
C (μF)	-	-	-	-	-			20	32	48	96	120			LC1-
Max. number of lamps	4	2	1	-	-			-	-	-	-	-			K09
accordint to P (W), per contactor	6	3	2	1	-			-	-	-	-	-			D09, D12
	7	4	3	1	1			17	-	-	-	-			D18
	10	5	3	2	1			22	13	8	-	-			D25
	13	8	5	2	2			30	18	11	6	-			D32, D38
	17	10	6	3	2			39	23	15	8	6			D40
	22	13	8	4	3			50	30	19	10	7			D50, D65
	31	18	12	6	4			71	42	27	15	10			D80, D95
	62	36	24	12	8			142	84	54	30	20			D115, D150
	88	52	34	18	14			200	120	76	42	30			F185
	96	56	36	20	16			216	130	82	46	32			F225
	110	66	42	24	18			250	150	94	54	38			F265
	124	74	48	26	20			282	170	108	60	42			F330
	158	94	60	34	24			358	214	136	76	54			F400
	214	126	80	46	32			482	290	184	104	74			F500
	312	186	118	68	48			708	424	270	152	108			F630, F800
Metal iodine vapour lamps															
P (W)	250	400	1000	2000				250	400	1000	2000				
IB (A)	2.5	3.6	9.5	20				1.4	2	5.3	11.2				
C (μF)	-	-	-	-				32	32	64	140				LC1-
Max. number of lamps	3	2	-	-				-	-	-	-				K09
accordint to P (W), per contactor	4	3	1	-				-	-	-	-				D09, D12
	6	4	1	-				-	-	-	-				D18
	7	5	2	-				13	9	-	-				D25
	10	7	2	1				18	13	4	-				D32, D38
	13	9	3	1				23	16	6	-				D40
	16	11	4	2				30	21	7	-				D50, D65
	24	16	6	3				42	30	11	5				D80, D95
	48	32	12	6				84	60	22	10				D115, D150
	66	46	18	8				120	84	32	14				F185
	72	50	20	10				130	90	34	16				F225
	84	58	22	12				150	104	40	18				F265
	94	66	24	14				170	118	44	20				F330
	120	84	32	16				214	150	56	26				F400
	162	112	42	20				290	202	76	36				F500
	238	164	62	30				424	298	112	52				F630, F800

## Incandescent and halogen lamps

P (W)	60	75	100	150	200	300	500	750	1000	
IB (A)	0.27	0.34	0.45	0.68	0.91	1.40	2.30	3.40	4.60	LC1-
Max. number of lamps	35	28	21	14	10	6	4	2	2	K09
accordint to P (W), per contactor	59	47	35	23	17	11	7	4	3	D09, D12
	77	61	46	30	23	15	9	6	4	D18
	92	73	55	36	27	18	11	7	5	D25
	129	103	77	51	38	25	15	10	7	D32, D38
	163	129	97	64	48	31	19	13	9	D40
	207	164	124	82	62	40	24	16	12	D50, D65
	296	235	177	117	88	57	34	23	17	D80, D95
	430	340	256	170	126	82	50	34	24	D115
	466	370	280	184	138	90	54	36	26	D150
	710	564	426	282	210	136	82	56	40	F185
	770	610	462	304	228	148	90	60	44	F225
	888	704	532	352	262	170	104	70	52	F265
	1006	800	604	400	298	194	118	80	58	F330
	1274	1010	764	504	378	244	148	100	74	F400
	1718	1364	1030	682	508	330	200	136	100	F500
	2328	1850	1396	924	690	448	272	184	136	F600
	2776	2204	1666	1102	824	534	326	220	162	F800

## Fluorescent lamps with starter

### ■ single fitting

	Non-corrected					With parallel correction					
P (W)	20	40	65	80	110	20	40	65	80	110	
IB (A)	0.39	0.45	0.70	0.80	1.2	0.17	0.26	0.42	0.52	0.72	LC1-
C (μF)	-	-	-	-	-	5	5	7	7	16	K09
Max. number of lamps	24	21	13	12	8	56	36	22	18	-	D09, D12
accordint to P (W), per contactor	41	35	22	20	13	94	61	38	30	22	D18
	53	46	30	26	17	123	80	50	40	29	D25
	66	57	37	32	21	152	100	61	50	36	D32, D38
	89	77	50	43	29	205	134	83	67	48	D40
	112	97	62	55	36	258	169	104	84	61	D50, D65
	143	124	80	70	46	329	215	133	107	77	D80, D95
	205	177	114	100	66	470	367	190	153	111	D115, D150
	410	354	228	200	132	940	614	380	306	222	F185
	492	426	274	240	160	1128	738	456	368	266	F225
	532	462	296	260	172	1224	800	490	400	288	F265
	614	532	342	300	200	1412	922	570	462	332	F330
	696	604	388	340	226	1600	1046	648	522	378	F400
	882	764	490	430	286	2024	1322	818	662	478	F500
	1190	1030	662	580	386	2728	1724	1104	892	644	F600
	1612	1398	698	786	524	3700	2418	1498	1210	874	F800

### ■ twin fitting

	2x20	2x40	2x65	2x80	2x110	2x20	2x40	2x65	2x80	2x110	
P (W)	2x20	2x40	2x65	2x80	2x110	2x20	2x40	2x65	2x80	2x110	
IB (A)	2x0.22	2x0.41	2x0.67	2x0.82	2x1.1	2x0.13	2x0.24	2x0.39	2x0.48	2x0.65	LC1-
Max. number of lamps	2x21	2x11	2x7	2x5	2x4	2x36	2x20	2x12	2x10	2x7	K09
accordint to P (W), per contactor	2x36	2x18	2x10	2x8	2x6	2x60	2x32	2x20	2x16	2x12	D09, D12
	2x46	2x24	2x14	2x12	2x8	2x80	2x42	2x26	2x20	2x16	D18
	2x58	2x30	2x18	2x14	2x10	2x100	2x54	2x32	2x26	2x20	D25
	2x78	2x42	2x26	2x20	2x14	2x134	2x72	2x44	2x36	2x26	D32, D38
	2x100	2x52	2x32	2x26	2x18	2x168	2x90	2x56	2x44	2x32	D40
	2x126	2x68	2x40	2x34	2x24	2x214	2x116	2x70	2x58	2x42	D50, D65
	2x180	2x96	2x58	2x48	2x36	2x306	2x166	2x102	2x82	2x60	D80, D95
	2x360	2x194	2x118	2x96	2x72	2x614	2x332	2x204	2x166	2x122	D115, D150
	2x436	2x234	2x142	2x116	2x86	2x738	2x400	2x246	2x200	2x148	F185
	2x472	2x254	2x154	2x126	2x94	2x800	2x432	2x266	2x216	2x160	F225
	2x544	2x292	2x178	2x146	2x108	2x922	2x500	2x308	2x250	2x184	F265
	2x618	2x332	2x202	2x166	2x124	2x1046	2x566	2x348	2x282	2x208	F330
	2x782	2x420	2x256	2x210	2x156	2x1322	2x716	2x440	2x358	2x264	F400
	2x1054	2x566	2x346	2x282	2x210	2x1784	2x966	2x594	2x482	2x356	F500
	2x1430	2x766	2x468	2x384	2x286	2x2418	2x1310	2x806	2x654	2x484	F600, F800

## On-load capacitor switching

for bar-mounted contactors, a.c. control circuit

Rated operational voltage (V)	Without damping resistor			With damping resistor				
	Number of poles	Max. operational current (A)		Basic reference, to be completed	Number of poles	Max. operational current (A)		Basic reference, to be completed
		50 Hz	180 Hz			50 Hz	180 Hz	
1300	1	80	60	CE5-FB11•11	1 + 1 staggered pole	80	60	CE6-FB12•11
		160	125	CE5-GB11•11		160	125	CE6-GB12•11
		240	190	CE5-HB11•11		240	190	CE6-HB12•11
	2	80x2	60x2	CE5-FB21•11	2 + 2 staggered poles	240x2	190x2	CE6-HB22•11
		160x2	125x2	CE5-GB21•11				
		240x2	190x2	CE5-HB21•11				
	3	80x3	60x3	CE5-FB31•11				
		160x3	125x3	CE5-GB31•11				
		240x3	190x3	CE5-HB31•11				
1500	2 poles in series	160	125	CE5-GB12•11	1 + 2 staggered poles	160	125	CE6-GB13•11
		280	220	CE5-HB12•11		280	220	CE6-HB13•11
	2 x 2 poles in series	280x2	220x2	CE5-HB22•11				
2000	2 poles in series	240	190	CS5-HB12•11	1 + 2 staggered poles	240	190	CS6-HB13•11
	2 x 2 poles in series	240x2	190x2	CS5-HB22•11				
3000	3 poles in series	280	220	CS5-HB13•11	1 + 3 staggered poles	280	220	CS6-HB14•11



## Maximum operational power of contactors

### ■ standard contactors

Operational power at 50/60 Hz

	$\theta \geq 40\text{ }^{\circ}\text{C}$			$\theta \geq 55\text{ }^{\circ}\text{C}$			Peak current	Contactor size
	220 V	400 V	600 V	220 V	400 V	600 V		
	240 V	440 V	690 V	240 V	440 V	690 V		
	kVAR	kVAR	kVAR	kVAR	kVAR	kVAR	A	
6	11	15	20	6	11	15	560	LC1-D09, D12
9	15	20	25	9	15	20	850	LC1-D18
11	20	25	30	11	20	25	1600	LC1-D25
14	25	30	37	14	25	30	1900	LC1-D32, D38
17	30	37	50	17	30	37	2160	LC1-D40
22	40	50	60	22	40	50	2160	LC1-D50
22	40	50	75	22	40	50	3040	LC1-D65
35	60	75	90	35	60	75	3040	LC1-D80, D95
50	90	125	150	38	75	80	3100	LC1-D115
60	110	135	160	40	85	90	3300	LC1-D150
70	125	160	190	50	100	100	3500	LC1-F185
80	140	190	225	60	110	110	4000	LC1-F225
90	160	225	275	75	125	125	5000	LC1-F265
100	190	275	300	85	140	165	6500	LC1-F330
125	220	300	400	100	160	200	8000	LC1-F400
180	300	400	600	125	220	300	10000	LC1-F500
250	400	600	900	190	350	500	12000	LC1-F630
250	400	600	1200	190	350	500	14200	LC1-F800
200	350	500	1800	180	350	500	25000	LC1-BL
300	550	650	2500	250	500	600	25000	LC1-BM
500	8350	950	4000	400	750	750	25000	LC1-BP
600	1100	1300	5000	500	1000	1000	25000	LC1-BR

### ■ special contactors

Operational power at 50/60 Hz

	$\theta \geq 55\text{ }^{\circ}\text{C}$			Instantaneous auxiliary contacts		Tightening torque on cable end	Basic reference, to be completed
	220 V	400 V	660 V	N/O	N/C		
	240 V	440 V	690 V				
	kVAR	kVAR	kVAR			N.m	
6.7	12.5	18	24	1	1	1.2	LC1-DFK11**
				-	2	1.2	LC1-DFK02**
8.5	16.7	24	30	1	1	1.7	LC1-DGK11**
				-	2	1.7	LC1-DGK02**
10	20	30	36	1	1	1.9	LC1-DLK11**
				-	2	1.9	LC1-DLK02**
15	25	36	48	1	1	2.5	LC1-DMK11**
				-	2	2.5	LC1-DMK02**
20	33.3	48	60	1	2	5	LC1-DPK12**
25	40	58	75	1	2	5	LC1-DTK12**
40	60	92	120	1	2	9	LC1-DWK12**

# Heating applications and changeover contactor pairs

## 0 to 2750 A components



### Maximum operational current (device in open air)

Contactors			LC1-/LP1-K09	LC1-/LP1-K12	LC1-D09	LC1-DT20	LC1-D12	LC1-D18	LC1-D25	LC1-D32	LC1-D38	LC1-D40
■ 3-pole												
■ 4-pole												
LC2- changeover contactor pairs, factory assembled				K09004	K12004		DT20	DT25	DT32	DT40		D40004
Operational current in AC-1, in A,	$\geq 40^\circ \text{C}$	A	20	20	25	20	25	32	40	50	50	60
according to ambient temperature	$\geq 60^\circ \text{C}$	A	20	20	25	20	25	32	40	50	50	60
	$\geq 70^\circ \text{C}$											
Maximum operational power	220/230 V	kW	8	8	9	8	9	11	14	18	18	21
	240 V	kW	8	8	9	8	9	12	15	19	19	23
	380/400 V	kW	14	14	15	14	15	20	25	31	31	37
	415 V	kW	14	14	17	14	17	21	27	34	34	41
	440 V	kW	15	15	18	15	18	23	29	36	36	43
	500 V	kW	17	17	20	17	20	23	33	41	41	49
	660/690 V	kW	22	22	27	22	27	34	43	54	54	65

### Increase in operational current by parallel connection of poles

Apply the following coefficients to the currents or powers above; these coefficients take into account an often unbalanced distribution of current between the poles:

- 2 poles in parallel K = 1.6
- 3 poles in parallel K = 2.25
- 4 poles in parallel K = 2.8



### Connection accessories for heating applications

Paralleling links for:		Reference
■ model k	2 poles	with screw clamp terminals LA9-E01
	4 poles	with screw clamp terminals LA9-E02
■ model d	2 poles	D09...D38 LA9-D2561
		DT20 and DT25 (4P) LA9-D1261
		DT32...DT40 (4P) LAD-D96061
	3 poles	D40...D65 LA9-D40961
		D80 LA9-D80961
		D09...D38 LAD-9P3 <sup>(1)</sup>
4 poles	D80 LA9-D80962	
	DT20...DT25 LA9-D1263	
	D40...D65 LA9-D40963	
	D80 LA9-D80963	
■ model F	2 to 2	LC1-F1154 LA9-FF602
		LC1-F1504, F1854 LA9-FG602
		LC1-F2254, F2654, F3304, F4004 LA9-FH602
		LC1-F5004 LA9-FK602
		LC1-F6304 LA9-FL602

(1) Link that can be split, allowing parallel connection of 2 poles



LC1-D50	LC1-D65	LC1-D80	LC1-D115	LC1-F185	LC1-F225	LC1-F265	LC1-F330	LC1-F400	LC1-F500	LC1-F630	LC1-F780	LC1-F800	LC1-BL	LC1-BM	LC1-BP	LC1-BR
	<b>D65004</b>	<b>D80004</b>	<b>D115004</b>	<b>F1854</b>	<b>F2254</b>	<b>F2654</b>										
80	80	125	250	275	315	350	400	500	700	1000	1600	1000	800	1250	2000	2750
80	80	125	200	275	280	300	360	430	580	850	1350	850	700	1100	1750	2400
				180	200	250	290	340	500	700	1100	700	600	900	1500	2000
29	29	45	80	90	100	120	145	170	240	350	550	350	300	425	700	1000
31	31	49	83	100	110	125	160	180	255	370	570	370	330	450	800	1100
50	50	78	135	165	175	210	250	300	430	600	950	600	500	800	1200	1600
54	54	85	140	170	185	220	260	310	445	630	1000	630	525	825	1250	1700
58	58	90	150	180	200	230	290	330	370	670	1050	670	550	850	1400	2000
65	65	102	170	200	220	270	320	380	660	750	1200	750	600	900	1500	2100
86	86	135	235	280	300	370	400	530	740	1000	1650	1000	800	1100	1900	2700

# Accessories for changeover contactor pairs

## 0 to 2750 A components

### Mounting accessories for changeover contactor pairs

(for customer assembly)

Contactor type	Set of power connections	Mechanical interlock	Contactor type	Set of power connections	Mechanical interlock
<b>2 contactors, vertically mounted</b>					
■ 4-pole changeover pairs with locking device components					
LC1-B		EZ2-LB0601			
<b>2 identical contactors, horizontally mounted</b>					
■ with electrical interlocking kit for the contactors					
LC1-DT20...DT32	LAD-T9R1V <sup>(1)</sup>		LC1-DT40 and DT60	LAD-T9R2V <sup>(1)</sup>	
■ mechanical interlock with integral electrical interlocking					
LC1-D65004	LA9-D6570	LA9-D4002	LC1-D80004	LA9-D8070	LA9-D4002
LP1-D80004	LA9-D8070	LA9-D8002	LC1-D115004	LA9-D11570	LA9-D11502
■ without electrical interlocking <sup>(2)</sup>					
LC1-DT20...DT32	LAD-T9R1 <sup>(2)</sup>		LC1-DT40 and DT60	LAD-T9R2 <sup>(2)</sup>	
LC1 or LP1-D65004	LA9-D6570	LA9-D50978	LC1-D80004	LA9-D8070	LA9-D50978
LP1-D80004	LA9-D8070	LA9-D80978			
<b>2 contactors of identical rating, horizontally mounted</b>					
■ 4-pole changeover pairs					
LC1-F1154	LA9-FF977	LA9-FF970	LC1-F1504	LA9-F15077	LA9-FF970
LC1-F1854	LA9-FG977	LA9-FG970	LC1-F2254	LA9-F22577	LA9-FG970
LC1-F2654	LA9-FH977	LA9-FJ970	LC1-F3304	LA9-FJ977	LA9-FJ970
LC1-F4004	LA9-FJ977	LA9-FJ970	LC1-F5004	LA9-FK977	LA9-FJ970
LC1-F6304	LA9-FL977	LA9-FL970			
■ 3-pole changeover pairs with electrical interlocking					
LC1-D115 and D150	LA9-D11571	LA9-D11502			
<b>reversers assembled using 2 contactors, vertically mounted</b>					
■ 4-pole changeover pairs using contactors of identical rating <sup>(3)</sup>					
LC1-F1154 or F1505	(3)	LA9-FF4F	■ 3 or 4-pole changeover pairs using contactors of different rating		
LC1-F1854	(3)	LA9-FG4G	At bottom	At top	
LC1-F2254	(3)	LA9-FG4G	LC1-F115 or F1154	LC1-F185 or F1854	LA9-FG4F
LC1-F2654 or F3304	(3)	LA9-FH4H	or LC1-F150 or F1504	LC1-F225 or F2254	LA9-FG4F
LC1-F4004	(3)	LA9-FJ4J		LC1-F265 or F2654	LA9-FH4F
LC1-F5004	(3)	LA9-FK4K		LC1-F300 or F3304	LA9-FH4F
LC1-F6304	(3)	LA9-FL4L		LC1-F400 or F4004	LA9-FJ4F
LC1-F7804	(4)	LA9-FX971 <sup>(4)</sup>		LC1-F500 or F5004	LA9-FK4F
				LC1-F630, F6304 or F800	LA9-FL4F
				LC1-F265 or F2654	LA9-FH4G
				LC1-F330 or F3304	LA9-FH4G
				LC1-F400 or F4004	LA9-FJ4G
				LC1-F500 or F5004	LA9-FK4G
				LC1-F630, F6304 or F800	LA9-FL4G
				LC1-F265 or F2654	LA9-FJ4H
				or LC1-F330 or F3304	LA9-FK4H
				LC1-F500 or F5004	LA9-FK4H
				LC1-F630, F6304 or F800	LA9-FL4H
				LC1-F400 or F4004	LA9-FK4J
				LC1-F500 or F5004	LA9-FL4J
				LC1-F630, F6304 or F800	LA9-FL4J
				LC1-F500 or F5004	LA9-FL4K
				LC1-F630, F6304 or F800	LA9-FL4K

(1) Including mechanical interlock, (2) Order separately 2 auxiliary contact blocks LAD-N\*1 to obtain electrical interlocking between the two contactors, (3) Power connections to be made by the customer. (4) Double mechanical interlock mechanism with 2 interlock connecting rods and 4 power connecting links.





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