solidous ooo623 entrelec

Mini contactors



... the benefits at a glance ...

4 basic coil versions

✓ AC: 4.5 VA DC: 2.4 W DC: 1.5 W

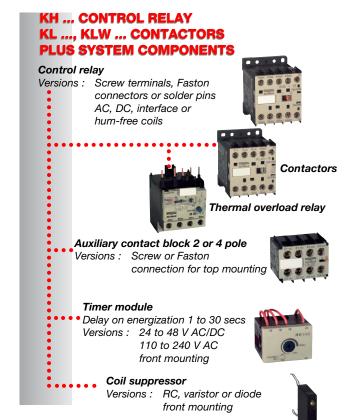
✓ AC with rectifier: 3.5 VA (hum-free, silent, no peak currents on make, insensitive to short voltage cutoffs).

M 06 motor protection relay covering a range from 0.1 to 11.5 A

- ✓ Phase failure sensitive
- ✓ Electrically separate 1 N/O + 1N/C contacts
- ✓ Hand/auto reset

contactors • control relays, contactors, reversing contactors

- ✓ Reset and setting parameters can be protected by sealable cover
- ✓ Control terminals are prewired
- ✓ Relay can be mounted beneath contactor



Reversing contactor



Versions: Screw terminals, Faston connectors or solder pins AC, DC, interface or hum-free coils



 Integral or external coil suppressors give reliable protection to electronics

2- or 4-pole snap-on auxiliary contact blocks to increase the number or contacts

■ Compact size saves space

Separation of contacts ensured by forced opening of contacts

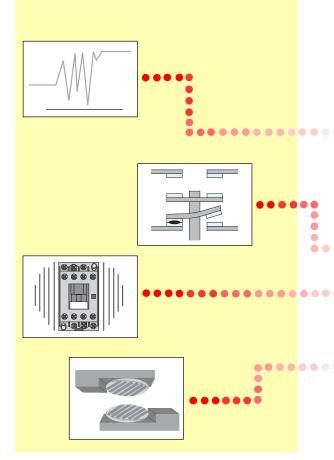
Maximum shock resistance through specially designed magnetic system

■ Contact reliability through special contacts

Safe transmission of low-level signals

■ Improved life at AC 3/AC 4 duty through optimized arc chutes and contact materials

Suitable for resistive loads (AC 1): contacts are designed for I_{th}
 29 A at 50°C



S014004 000919 entrelec

Control relays KH ..., AC operated without integral coil suppressor



- Terminal numbering to DIN EN 50 011
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- Bi-frequency coils 50/60 Hz
- High contact reliability
- Forced opening of contacts
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536

Approvals: (9) (6) (0) (5)

Voltage codes 04 ... 73 to be added to the contactor order reference number

	for coil	1				
Code	voltage	Color code 1)				
number	AC	AC				
04	12 V	violet				
06	24 V	violet				
10	32 V	violet				
11	36 V	green				
13	42 V	white				
15	48 V	white				
19	60 V	green				
25	110 V	yellow				
28	120 V	yellow				
29	127 V	yellow				
38	208 V	blue				
40	230 V	blue				
41	220 V	blue				
43	240 V	blue				
59	400 V	red				
61	380 V	red				
63	415 V	red				
65	440 V	red				
69	500 V	black				
73	600 V	black				

Our mini contactors are delivered with bi-frequency coils for 50/60 Hz.

Further notes at the bottom of this page.

Characteristics of control relays KH ..., AC operated, 4.5 VA coils

Version with screw terminals

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right		ct uration N/C	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHS-31	1 309 060	3	1	A1 13 21 33 43		0.180	
10	KHS-22	1 309 070	2	2	A1 13 21 31 43	50/60 Hz coilwithout integral coil suppressor	0.180	
	KHS-40	1 309 050	4	0	A1 13 23 33 43 A2 14 24 34 44		0.180	

Version with Faston connectors, 2 x 2.8 mm or 1 x 6.35 mm

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right	Contact configuration N/O N/C	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHF-31	1 309 160	3 1	A1 13 21 33 43 A2 14 22 34 44		0.180	
10	KHF-22	1 309 170	2 2	A1 13 21 31 43	- 50/60 Hz coil - without integral coil suppressor	0.180	
	KHF-40	1 309 150	4 0	A1 13 23 33 43		0.180	

Version with solder pins, 1.7 mm \emptyset , hole on p. c. b.

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right	Contac configu N/O	uration	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHL-31	1 309 260	3	1	A1 13 21 33 43 		0.210	
10	KHL-22	1 309 270	2	2	A1 13 21 31 43 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- 50/60 Hz coil - without integral coil suppressor	0.210	
	KHL-40	1 309 250	4	0	A1 13 23 33 43 		0.210	

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V

Auxiliary contact block - page 1641

Other system components - page 1641

Technical details - pages 1664, 1666

sol4005 000919 entrelec

Control relays KH ..., AC operated with integral coil suppressor



- Terminal numbering to DIN EN 50 011
- Compact design
- Available in 3 versions:
 - with screw terminals
 - Faston connectors
 - solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- Bi-frequency coils 50/60 Hz
- High contact reliability
- Forced opening of contacts
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536

Voltage codes 04 ... 73 to be added to the contactor order reference number for coil voltage Color code 1) Code AC number AC ... 04 12 V violet ... 06 24 V violet ... 10 32 V violet ... 11 36 V green ... 13 ... 15 42 V 48 V white ... 19 60 V green ... 25 110 V yellow ... 28 120 V yellow ... 29 127 V 208 V yellow blue ... 40 230 V blue 220 V ... 41 blue ... 43 240 V blue ... 59 ... 61 400 V 380 V red red ... 63 415 V red 440 V ... 65 red 500 V ... 69 black 600 V ... 73 black

Our mini contactors are delivered with bi-frequency coils for 50/60 Hz.

Further notes at the bottom of this page.

Approvals: (a) (6 (b) (5)

Characteristics for control relays KH ..., AC operated, 4.5 VA coils

Version with screw terminals

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right		ct uration N/C	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHS-31	1 309 062	3	1	A1 13 21 33 43	- with integral coil suppressor	0.180	
10	KHS-22	1 309 072	2	2	A1 13 21 31 43 A2 14 22 32 44	VDR	0.180	
	KHS-40	1 309 052	4	0	A1 13 23 33 43	≃o - permitted up to 240 V max.	0.180	

Version with Faston connectors, 2 x 2.8 mm or 1 x 6.35 mm

VOI SIOTI WILLII I'U	Islant With Laston Connectors, 2 x 2.0 mm or 1 x 0.00 mm							
Rated thermal current I _{th} A	Туре	Order ref.: see supplements at the top right	Contact configu N/O	ration	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHF-31	1 309 162	3	1	A1 13 21 33 43 A2 14 22 34 44	- with integral coil suppressor ≃o———	0.180	
10	KHF-22	1 309 172	2	2	A1 13 21 31 43 A2 14 22 32 44	VDR	0.180	
	KHF-40	1 309 152	4	0	A1 13 23 33 43 A2 14 24 34 44	~o - permitted up to 240 V max.	0.180	

Version with solder pins, 1.7 mm Ø, hole on p. c. b.

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right	Contac configu N/O	ıration	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHL-31	1 309 262	3	1	A1 13 21 33 43 A2 14 22 34 44	- with integral coil suppressor ≃o———	0.210	
10	KHL-22	1 309 272	2	2	A1 13 21 31 43	VDR	0.210	
	KHL-40	1 309 252	4	0	A1 13 23 33 43	≃o—— - permitted up to 240 V max.	0.210	

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V

Auxiliary contact block - page 1641

Other system components - page 1641

Technical details - pages 1664, 1666

AC-coils available with integral coil suppressor to max. 230 ${
m V}$

sol4006 000919 entrelec

Control relays KHDC ..., DC operated without integral coil suppressor



- Terminal numbering to DIN EN 50 011
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- High contact reliability
- Forced opening of contacts
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536

Voltage codes 04 ... 40 to be added to the contactor order reference number

Code number	for coil voltage DC	Color code 1) DC				
04	12 V	green				
06	24 V	green				
10	32 V	green				
11	36 V	green				
13	42 V	green				
15	48 V	green				
19	60 V	green				
25	110 V	green				
28	120 V	green				
29	125 V	green				
38	208 V	green				
40	220 V	green				

Further notes at the bottom of this page.

Approvals: (A) (G) (D) (S)

Characteristics for control relays KHDC ..., DC operated, 3 W coils

Versions with screw terminals

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right	Contact configura N/O N	ation	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHDCS-31	1 309 065	3 -	1	A1 13 21 33 43 		0.225	
10	KHDCS-22	1 309 075	2 2	2	A1 13 21 31 43 	 without integral coil suppressor 	0.225	
	KHDCS-40	1 309 055	4 (0	A1 13 23 33 43 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		0.225	

Version with Faston connectors, 2 x 2.8 mm or 1 x 6.35 mm

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right	-	ct uration N/C	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHDCF-31	1 309 165	3	1	A1 13 21 33 43		0.225	
10	KHDCF-22	1 309 175	2	2	A1 13 21 31 43	- without integral coil suppressor	0.225	
	KHDCF-40	1 309 155	4	0	A1 13 23 33 43 A2 14 24 34 44		0.225	

Version with solder pins, 1.7 mm Ø, hole on p. c. b.

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right		ct uration N/C	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHDCL-31	1 309 265	3	1	A1 13 21 33 43 A2 14 22 34 44		0.225	
10	KHDCL-22	1 309 275	2	2	A1 13 21 31 43	- without integral coil suppressor	0.225	
	KHDCL-40	1 309 255	4	0	A1 13 23 33 43		0.225	

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V Auxiliary contact block - page 1641

Other system components - page 1641

Technical details - pages 1664, 1666

s014007 000919 entrelec

Control relays KHDC ..., DC operated with integral coil suppressor



- Terminal numbering to DIN EN 50 011
- Compact design
- Available in 3 versions :
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- High contact reliability
- Forced opening of contacts
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536

Voltage codes 04 ... 40 to be added to the contactor order reference number

Code	for coil voltage	Color code 1)				
number	DC	DC				
	-					
04	12 V	green				
06	24 V	green				
10	32 V	green				
11	36 V	green				
13	42 V	green				
15	48 V	green				
19	60 V	green				
25	110 V	green				
28	120 V	green				
29	125 V	green				
38	208 V	green				
40	220 V	green				

Further notes at the bottom of this page.

Approvals: (a) (b) (b) (c)

Characteristics for control relays KHDC ..., DC operated, 3 W coils

Version with screw terminals

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right	Contact configuration N/O N/C	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHDCS-31	1 309 066	3 1	A1 13 21 33 43	- with integral coil suppressor	0.225	
10	KHDCS-22	1 309 076	2 2	A1 13 21 31 43	A1 A2	0.225	
	KHDCS-40	1 309 056	4 0	A1 13 23 33 43	- permitted up to 240 V max.	0.225	

Version with Faston connectors, 2 x 2.8 mm or 1 x 6.35 mm

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right	Contact configuration N/O N/C	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHDCF-31	1 309 166	3 1	A1 13 21 33 43 A2 14 22 34 44	- with integral coil suppressor	0.225	
10	KHDCF-22	1 309 176	2 2	A1 13 21 31 43 	A1 A2	0.225	
	KHDCF-40	1 309 156	4 0	A1 13 23 33 43	- permitted up to 240 V max.	0.225	

Version with solder pins, 1.7 mm Ø, hole on p. c. b.

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right	Contact configuration N/O N/C	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHDCL-31	1 309 266	3 1	A1 13 21 33 43	- with integral coil suppressor	0.225	
10	KHDCL-22	1 309 276	2 2	A1 13 21 31 43	A1 A2	0.225	
	KHDCL-40	1 309 256	4 0	A1 13 23 33 43	- permitted up to 240 V max.	0.225	

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V Auxiliary contact block - page 1641

Other system components - page 1641

Technical details - pages 1664, 1666

DC-coils available with integral coil suppressor to max. 220 V

Color code to IEC 309-1 printed on the coil.

Only for compact contactors, HL 4 K / HL 8 K and DL 4 K - DL 18 K

S014008 000919 entrelec

Control relays KHi (interface), DC operated with integral coil suppressor and LED to indicate operational state



- Terminal numbering to DIN EN 50 011
- Compact design, same size as AC control relay
- Version :
- with screw terminals
- Low power consumption coils
- High contact reliability
- Switch position indication
- Positively guided terminals
- Can be directly controlled by programmable controller
- Safety isolation up to 400 V to VDE 0106, IEC 536

Voltage codes 04 40 to be added to the contactor order reference number								
Code	for coil voltage	Color code 1)						
number	DC	DC DC						
04	12 V	green						
06	24 V	green						
10	32 V	green						
11	36 V	green						
13	42 V	green						
15	48 V	green						
19	60 V	green						
25	110 V	green						
28	120 V	green						
29	125 V	green						
38	208 V	green						
40	220 V	green						

Further notes at the bottom of this page.

Approvals: (A) (S) (D) (S)

Characteristics for contol relays KHiS ..., DC operated, interface, 1.8 W coil

Version with screw terminals

Rated thermal current I _{th}	Туре	Order ref.: see supplements at the top right	Contact configuration N/O N/C	Circuit diagram to DIN EN 50 011	Features	Weight kg	For dimensions see page 1673
	KHiS-31	1 309 067 06	3 1	A1 13 21 33 43 	built-in LED to indicate operational state Coil operating voltage	0.235	
10	KHiS-22	1 309 077 06	2 2	A1 13 21 31 43	rangs 0.7 to 1.3 Vc - integral coil suppressor	0.235	
	KHiS-40	1 309 057 06	4 0	A1 13 23 33 43	- only 2 pole aux. contact block permitted	0.235	

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request DC: 24 and 48 V

Auxiliary contact block - page 1641

Other system components - page 1641

Technical details - pages 1664, 1666

entrelec S014009 000919

Mini contactors: system components for use with control relays, contactors, and reversing contactors











- Auxiliary contact blocks, 2- or 4-pole, front fitting
- Compact in size, mounts quickly
- Available in 2 versions :
- S = screw terminals
- F = Faston connectors
- Contact positioning and numbering to DIN EN 50011 on types HS/HF when mounted to control relays with 4 N/O contacts
- When mounted to contactors, DIN EN 50012 is maintained when LS contacts are used
- High contact reliability
- Switch position indication
- 3 front mounting coil suppressor versions with LED indicators
- Front mounting timer module, delay on energization up to 30 secs

Approvals: (A) (G) (D) (S)

Characteristics

Auxiliary contact blocks

for use with KL ..., KLW contactors

for use with KH ..., KHDC ..., KHi control relays

Top mounting				
for contactors	Туре	Circuit diagram	Order ref.:	
DIN EN 50 012	LS-11	21 33 	3 309 001 01	
	LS-02	21 31 1	3 309 002 01	
KL KLW	LS-13	21 31 41 53 4 - 4 - 4 - 1 22 32 42 54	3 309 005 01	
KLW	LS-22	21 31 43 53 	3 309 004 01	
	LS-31	21 33 43 53 	3 309 003 01	
	HS-02	51 61	3 309 033 01	
	HF-02	52 62	3 309 043 01	
	HS-04	51 61 71 81	3 309 038 01	
	HF-04	52 62 72 82	3 309 048 01	
	HS-11	53 61	3 309 032 01	
	HF-11	54 62	3 309 042 01	
KH, KHDC,	HS-13	53 61 71 81 \	3 309 037 01	
KHi	HF-13	54 62 72 82	3 309 047 01	
	HS-20	53 63	3 309 031 01	
	HF-20	54 64	3 309 041 01	
	HS-22	53 61 71 83	3 309 036 01	
	HF-22	54 62 72 84	3 309 046 01	
	HS-31	53 61 73 83	3 309 035 01	
	HF-31	54 62 74 84	3 309 045 01	
	HS-40	53 63 73 83	3 309 034 01	
	HF-40	54 64 74 84	3 309 044 01	
Majaht O 0 45 km				

Weight: 0.045 kg

Coil suppressors with built-in LED indicator

RC coil suppressor (for AC operated contactor)

Туре	Voltage range	Order ref.:	
RC-250 ¹⁾	220250 V	3 309 062 01	

Diode coil suppressor (for DC operated contactor)

Туре	Voltage range	Order ref.:	
D-24 ²⁾	1224 =	3 309 061 01	
D-48 ²⁾	3248 =	3 309 061 02	

Varistor coil suppressor (for AC or DC operated contactor)

Туре	Voltage range	Order ref.:
V-24 ³⁾	1224 AC/DC	3 309 060 01
V-48 ³⁾	3248 AC/DC	3 309 060 02
V-130 ³⁾	40129 AC/DC	3 309 060 04
V-250 ³⁾	130250 AC/DC	3 309 060 05

Weight: 0.010 kg

Timer module snaps to the front of contactor

Туре	Timer range	Voltage range input/coil	Order ref.:		
HV-48	130	2448 V AC/DC	3 309 050 01		
HV-240	130	110240 V AC	3 309 050 02		

Weight: 0.040 kg

Technical details:

- Relay outputs
- 240 V AC/DC, 2 A max.
- Max. switching capacity 250 VA / 150 W
- Control voltage range 0.85...1.1 V_c
- Permissible ambient temperature -10°C ... +60°C
- Reset time :
- 1.5 secs while timing 0.5 secs after timing

Circuit diagram:



Explanation :

- ... S = screw terminals
- ... F = Faston connectors
 - on KHi only 2-pole versions permitted!

Notes

- Limits transient voltage to max. 3 Vc. Slight increase in drop-out time (1.2 to 2 times the normal time).
- No interference by transient voltages and high frequency. Observe polarity when connecting. Slight increase in drop-out time (1.1 to 1.5 times the normal time).
- Limits transient voltages to max. 2 Vc. Max. reduction of transient voltage peaks. Slight increase in drop-out time (1.1 to 1.5 times the normal time).

Technical details - pages 1664-1666

Dimensions - page 1673

sol4010 000623 entrelec

Contactors KL ..., 2.2 and 4 kW / 3 and 5 HP at 460 V, 3 ph. (AC 3) AC operated,

without integral coil suppressor



- Terminal numbering to DIN EN 50 005 and DIN EN 50 012
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- Bi-frequency AC coils 50/60 Hz
- High contact reliability
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536

KL contactors are designed to switch three-phase and AC loads. Applications include building automation, air conditioning, heating and ventilation, and switching resistive loads such as heaters, lamps, and inductive loads, e.g., valves, couplings, etc.

Approvals: (0) (6) (0) (5)

Voltage codes 04 ... 73 to be added to the contactor order reference number

	for coil	
Code	voltage	Color code 1)
number	AC	AC
04	12 V	violet
06	24 V	violet
10	32 V	violet
11	36 V	green
13	42 V	white
15	48 V	white
19	60 V	green
25	110 V	yellow
28	120 V	yellow
29	127 V	yellow
38	208 V	blue
40	230 V	blue
41	220 V	blue
43	240 V	blue
59	400 V	red
61	380 V	red
63	415 V	red
65	440 V	red
69	500 V	black
73	600 V	black

Our mini contactors are delivered with bi-frequency coils for 50/60 Hz.

Further notes at the bottom of this page.

Characteristics for contactors KL ..., AC operated, 4.5 VA coils

	AC 3 ration hase model as well		690 V	Rated operational current le AC 1/AC 3 up to 440 V A	Contactor type	Order ref.: see supplements at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673
Versio	Version with screw terminals										
1.5	2.2	3	3	20/6	KL2S-10	1 309 000	A1 1 3 5 13 A2 2 4 6 14				
1.5	2.2	3	3	20/0	KL2S-01	1 309 010	A1 1 3 5 21 A2 2 4 6 22	- 50/60 Hz coil	0.180	M 06	
2.2	4	4	4	20/9	KL4S-10	1 309 020	A1 1 3 5 13 A2 2 4 6 14	- without integral coil suppressor	0.100	W 00	
					KL4S-01	1 309 030	A1 1 3 5 21 A2 2 4 6 22				
Versio	n with F	aston c	onnecto	ors, 2 x 2.8 mm	or 1 x 6.35 mr	m					
1.5	2.2	3	3	20/6	KL2F-10	1 309 100	A1 1 3 5 13 A2 2 4 6 14				
1.5	2.2	3	3	20/6	KL2F-01	1 309 110	A1 1 3 5 21 A2 2 4 6 22	- 50/60 Hz coil	0.180	M 06	
2.2	4	4	4	20/9	KL4F-10	1 309 120	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	- without integral	0.160	IVI UG	
2.2	7	7	7	20/3	KL4F-01	1 309 130	A1 1 3 5 21 A2 2 4 6 22	Con Suppressor			
Version	n with s	older pi	ns , 1,7 r	mm Ø, hole on i	p. c. b.	,	•	•	•		
1.5	2.2	3	3	20/6	KL2L-10	1 309 200	A1 1 3 5 13 A2 2 4 6 14				
1.5	2.2	o	ა 	20/0	KL2L-01	1 309 210	A1 1 3 5 21 A2 2 4 6 22	- 50/60 Hz coil	0.210	M 06	
2.2	4	4	4	20/9	KL4L-10	1 309 220	A1 1 3 5 13 A2 2 4 6 14	- without integral coil suppressor	0.210	101 00	
	-	-			KL4L-01	1 309 230	A1 1 3 5 21 A2 2 4 6 22	33, 33, 15, 15, 15, 15, 15, 15, 15, 15, 15, 15			

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V Auxiliary contact block - page 1653

Other system components - page 1653

Technical details - pages 1664-1665

entrelec S014011

Contactors KL ..., 2.2 and 4 kW / 3 and 5 HP at 460 V, 3 ph. (AC 3) AC operated,

with integral coil suppressor



- Terminal numbering to DIN EN 50 005 and DIN EN 50 012
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- Bi-frequency AC coils 50/60 Hz
- High contact reliability
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536

KL contactors are designed to switch three-phase and AC loads. Applications include building automation, air conditioning, heating and ventilation, and switching resistive loads such as heaters, lamps, and inductive loads, e.g., valves, couplings, etc.

Approvals: (A) (G) (D) (S)

Voltage codes 04 ... 73 to be added to the contactor order reference number

	for coil	
Code	voltage	Color code 1)
number	AC	AC
04	12 V	violet
06	24 V	violet
10	32 V	violet
11	36 V	green
13	42 V	white
15	48 V	white
19	60 V	green
25	110 V	yellow
28	120 V	yellow
29	127 V	yellow
38	208 V	blue
40	230 V	blue
41	220 V	blue
43	240 V	blue
59	400 V	red
61	380 V	red
63	415 V	red
65	440 V	red
69	500 V	black
73	600 V	black

Our mini contactors are delivered with bi-frequency coils for 50/60 Hz.

Further notes at the bottom of this page.

Characteristics for contactors KL ..., AC operated, 4.5 VA coils

	C 3 rationase modernase mo		690 V	Rated opera- tional current le AC 1/AC 3 up to 440 V A	Contactor type	Order ref.: see supplements at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673
Versio	n with s	crew te	rminals				•			•	
1.5	2.2	3	3	20/6	KL2S-10	1 309 002	A1 1 3 5 13 A2 2 4 6 14	- 50/60 Hz coil			
1.5	2.2	3	3	20/0	KL2S-01	1 309 012	A1 1 3 5 21 A2 2 4 6 22	coil suppressor	0.180	M 06	
2.2	4	4	4	20/9	KL4S-10	1 309 022	A1 1 3 5 13 A2 2 4 6 14	VDR	0.100	W GG	
	-		-	-5, 2	KL4S-01	1 309 032	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	permitted up to 240 V max.			
Versio	n with F	aston c	onnecto	ors, 2 x 2.8 mm	or 1 x 6.35 mr	n					
1.5	2.2	3	3	20/6	KL2F-10	1 309 102	A1 1 3 5 13 A2 2 4 6 14	- 50/60 Hz coil			
1.5	2.2	3	3	20/6	KL2F-01	1 309 112	A1 1 3 5 21 A2 2 4 6 22	- with integral coil suppressor	0.180	M 06	
2.2	4	4	4	20/9	KL4F-10	1 309 122	A1 1 3 5 13 A2 2 4 6 14	VDR	0.180	IVI UB	
2.2	7	4	4	20/9	KL4F-01	1 309 132	A1 1 3 5 21 A2 2 4 6 22	permitted up to 240 V max.			
Versio	n with s	older pi	ทร , 1,7 เ	mm Ø, hole on	p. c. b.	•	•				
1.5	2.2	3	3	20/6	KL2L-10	1 309 202	A1 1 3 5 13 A2 2 4 6 14	- 50/60 Hz coil			
1.5	2.2	ა 	ى 	20/0	KL2L-01	1 309 212	A1 1 3 5 21 A2 2 4 6 22	- with integral coil suppressor	0.210	M 06	
2.2	4	4	4	20/9	KL4L-10	1 309 222	A1 1 3 5 13 A2 2 4 6 14	VDR	0.210	101 00	
	-	•	-		KL4L-01	1 309 232	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	permitted up to 240 V max.			

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request

AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V

Auxiliary contact block - page 1653

Other system components - page 1653

Technical details - pages 1664-1665

AC-coils available with integral coil suppressor to max. 230 V

S014012 000919 entrelec

Contactors KLDC ..., 2.2 and 4 kW / 3 and 5 HP at 460 V, 3 ph. (AC 3) DC operated,

without integral coil suppressor



- Terminal numbering to DIN EN 50 005 and DIN EN 50 012
- Compact design
- Available in 3 versions:
 - with screw terminals
 - Faston connectors
 - solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- High contact reliability
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536

KLDC contactors are designed to switch three-phase and AC loads. Applications include building automation, air conditioning, heating and ventilation, and switching resistive loads such as heaters, lamps, and inductive loads, e.g., valves, couplings, etc.

Approvals: (A) (6 (D) (S)

Voltage codes 04 ... 40 to be added to the contactor order reference number

	for coil					
Code	voltage	Color code 1)				
number	DC	DC				
04	12 V	green				
06	24 V	green				
10	32 V	green				
11	36 V	green				
13	42 V	green				
15	48 V	green				
19	60 V	green				
25	110 V	green				
28	120 V	green				
29	125 V	green				
38	208 V	green				
40	220 V	green				

Further notes at the bottom of this page.

Characteristics for contactors KLDC ..., DC operated, 3 VA coils

	AC 3 ration hase model 380 415 V		690 V	Rated opera- tional current le AC 1/AC 3 up to 440 V A	Contactor type	Order ref.: see supplements at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673	
Versio	Version with screw terminals											
1.5	2.2	3	3	20/6	KLDC2S-10	1 309 005	A1 1 3 5 13 A2 2 4 6 14					
1.5	2.2	5	3	20/0	KLDC2S-01	1 309 015	A1 1 3 5 21 A2 2 4 6 22	- without integral	0.225	M 06		
2.2	4	4	4	20/9	KLDC4S-10	1 309 025	A1 1 3 5 13 A2 2 4 6 14	coil suppressor	0.220	55		
	-	·		-9, 2	KLDC4S-01	1 309 035	A1 1 3 5 21 A2 2 4 6 22					
Versio	n with F	aston c	onnecto	ors, 2 x 2.8 mm	or 1 x 6.35 mr	m						
1.5	2.2	3	3	20/6	KLDC2F-10	1 309 105	A1 1 3 5 13 A2 2 4 6 14			M 06		
1.5	2.2	3	3	20/6	KLDC2F-01	1 309 115	A1 1 3 5 21 A2 2 4 6 22	- without integral	0.225			
2.2	4	4	4	20/9	KLDC4F-10	1 309 125	A1 1 3 5 13 A2 2 4 6 14	coil suppressor	0.223	IVI UG		
2.2	7	4	4	20/9	KLDC4F-01	1 309 135	A1 1 3 5 21 A2 2 4 6 22					
Versio	n with s	older pi	ทร , 1,7 เ	mm Ø, hole on i	p. c. b.			•				
1.5	2.2	3	3	20/6	KLDC2L-10	1 309 205	A1 1 3 5 13 A2 2 4 6 14					
1.5	2.2	3	<u>.</u>	20/0	KLDC2L-01	1 309 215	A1 1 3 5 21 A2 2 4 6 22		0.225	M 06		
2.2	4	4	4	20/9	KLDC4L-10	1 309 225	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	- without integral coil suppressor	0.223	101 00		
		·			KLDC4L-01	1 309 235	A1 1 3 5 21 A2 2 4 6 22					

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V

Color code to IEC 309-1 printed on the coil. Only for compact contactors, HL 4 K / HL 8 K and DL 4 K - DL 18 K $\,$

Auxiliary contact block - page 1653

Other system components - page 1653

Technical details - pages 1664-1665

sol4ol3 000919 entrelec

Contactors KLDC ..., 2.2 and 4 kW / 3 and 5 HP at 460 V, 3 ph. (AC 3) DC operated with integral coil suppressor



- Terminal numbering DIN EN 50 005 and DIN EN 50 012
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- High contact reliability
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536

KLDC contactors are designed to switch three-phase and AC loads. Applications include building automation, air conditioning, heating and ventilation, and switching of resistive loads such as heaters, lamps, and inductive loads, e.g., valves, couplings, etc.

Approvals: (a) (6 (b) (5)

Voltage codes 04 ... 40 to be added to the contactor order reference number

	for coil				
Code	voltage	Color code 1)			
number	DC	DC			
04	12 V	green			
06	24 V	green			
10	32 V	green			
11	36 V	green			
13	42 V	green			
15	48 V	green			
19	60 V	green			
25	110 V	green			
28	120 V	green			
29	125 V	green			
38	208 V	green			
40	220 V	green			

Further notes at the bottom of this page.

Characteristics for contactors KLDC ..., DC operated, 3 W coils

	AC 3 ration hase model 380 415 V		690 V	Rated opera- tional current le AC 1/AC 3 up to 440 V A	Contactor type	Order ref.: see supplements at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673
Versio	n with s	crew te	minals								
1.5	2.2	3	3	20/6	KLDC2S-10	1 309 006	A1 1 3 5 13 A2 2 4 6 14	- with integral			
1.5	2.2	3	3	20/0	KLDC2S-01	1 309 016	A1 1 3 5 21 A2 2 4 6 22	+	0.225	M 06	
2.2	4	4	4	20/9	KLDC4S-10	1 309 026	A1 1 3 5 13 A2 2 4 6 14	A A1 A2	0.220	55	
					KLDC4S-01	1 309 036	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	permitted up to 240 V max.			
Versio	n with F	aston c	onnecto	ors, 2 x 2.8 mm	or 1 x 6.35 mr	n					
1.5	2.2	3	3	20/6	KLDC2F-10	1 309 106	A1 1 3 5 13 A2 2 4 6 14	- with integral			
1.5	2.2	3	3	20/6	KLDC2F-01	1 309 116	A1 1 3 5 21 A2 2 4 6 22	coil suppressor	0.225	M 06	
2.2	4	4	4	20/9	KLDC4F-10	1 309 126	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	A [A1]	0.225	IVI UG	
2.2	7	7	4	20/9	KLDC4F-01	1 309 136	A1 1 3 5 21 A2 2 4 6 22	permitted up to 240 V max.			
Versio	n with s	older pi	ns , 1,7 r	nm Ø, hole on I	o. c. b.	•					
1.5	2.2	3	3	20/6	KLDC2L-10	1 309 206	A1 1 3 5 13 A2 2 4 6 14	- with integral			
1.5	2.2	3	3	20/0	KLDC2L-01	1 309 216	A1 1 3 5 21		0.225	M 06	
2.2	4	4	4	20/9	KLDC4L-10	1 309 226	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	A1 A2	5.225	00	
					KLDC4L-01	1 309 236	A1 1 3 5 21 A2 2 4 6 22	permitted up to 240 V max.			

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V Auxiliary contact block - page 1653

Other system components - page 1653

Technical details - pages 1664-1665

DC-coils available with integral coil suppressor to max. 220 V

S014014 000731 entrelec

Interface contactors KLi ... 4 kW / 5 HP at 460 V, 3 ph. (AC 3) DC operated, with integral coil suppressor and LED switch position indication



- Terminal numbering to DIN EN 50 005 and DIN EN 50 012
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- High contact reliability
- Switch position indication
- Can be directly controlled by programmable controllers
- Safety isolation up to 400 V to VDE 0106, IEC 536

Voltage codes 04 40 to be added to the contactor order										
reference number										
	for coil									
Code	voltage	Color code 1)								
number	DC	DC								
04	12 V	green								
06	24 V	green								
10	10 32 V green									
11	36 V	green								
13	42 V	green								
15	48 V	green								
19	60 V	green								
25	110 V	green								
28	120 V	green								
29	125 V	green								
38	208 V	green								
40	220 V	green								

Further notes at the bottom of this page.

Approvals: (1)) (D)	S
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Characteristics for contactors KLi ..., DC operated, 1.8 W coils

	AC 3 rationals mose mose mose mose mose mose mose at a square at a		690 V	Rated operational current le AC 1/AC 3 up to 440 V A	Contactor type	Order ref.: see supplements at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673
Versio	n with s	crew ter	minals								
								- Built in LED to indi- cate switch position			
							A4 1 2 5 12	- Coil voltage range from 0.7 to 1.3 Vc - Integral coil			
2.2	4	4	4	20/9	KLi4S-10	1 309 027	A2 2 4 6 14	suppressor up to 72 V max. - Only 2 pole aux.	0.235	M 06	
					KLi4S-01	1 309 037	A1 1 3 5 21 A2 2 4 6 22	contact block permitted			
Versio	n with F	aston c	onnecto	ors, 2 x 2.8 mm	or 1 x 6.35 mr	n					
								- Built in LED to indi- cate switch position			
								Coil voltage range from 0.7 to 1.3 Vc Integral coil			
2.2	4	4	4	20/9	KLi4F-10	1 309 127	A1 1 3 5 13 A2 2 4 6 14	suppressor up to 72 V max.	0.235	M 06	
2.2	•	7	7	20/3	KLi4F-01	1 309 137	A1 1 3 5 21 A2 2 4 6 22	contact block permitted	0.200	W GG	
Versio	n with s	older pi	ทร , 1,7 เ	mm Ø, hole on	o. c. b.				•		
								- Buil-in LED to indi- cate switch position			
								- Coil voltage range from 0.7 to 1.3 Vc - Integral coil			
2.2	4	4	4	20/9	KLi4L-10	1 309 227	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	suppressor up to 72 V max. - Only 2 pole aux. contact block permitted	0.265	M 06	
	-				KLi4L-01	1 309 237	A1 1 3 5 21 A2 2 4 6 22				

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request DC: 24 and 48 V

Auxiliary contact block - page 1653

Other system components - page 1653

Technical details - pages 1664-1665

s014015 000623 **entrelec**

Contactors KLb ..., 4 kW / 5 HP at 460 V, 3 ph. (AC 3) AC operated, with integral coil suppressor hum-free for special applications



- Terminal numbering to DIN EN 50 005 and DIN EN 50 012
- Compact design
- Available in 3 versions:
 - with screw terminals
 - Faston connectors
 - solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- Bi-frequency AC coils 50/60 Hz
- High contact reliability
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536
- KLi contactors are hum free which makes them suitable for use in building equipment, etc.
- Magnet coil with integral rectifier and coil suppressor
- Suitable for rail mounting (35 mm rail) or screw fixing (4 mm dia. screws)
- Connecting screws are supplied with the clamps in the open position
- Approvals: (9) (6) (9) (9)

Voltage codes 04 ... 73 to be added to the contactor order reference number

	for coil	
Code	voltage	Color code 1)
number	AC	AC
04	12 V	violet
06	24 V	violet
10	32 V	violet
11	36 V	green
13	42 V	white
15	48 V	white
19	60 V	green
25	110 V	yellow
28	120 V	yellow
29	127 V	yellow
38	208 V	blue
40	230 V	blue
41	220 V	blue
43	240 V	blue
59	400 V	red
61	380 V	red
63	415 V	red
65	440 V	red
69	500 V	black
73	600 V	black

Our mini contactors are delivered with bi-frequency coils for 50/60 Hz.

Further notes at the bottom of this page.

Characteristics for contactors KLb ..., AC operated, 3 VA coils

	AC 3 ration hase mo		690 V	Rated opera- tional current le AC 1/AC 3 up to 440 V A	Contactor type	Order ref.: see supplements at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673
Versio	n with s	crew te	rminals								
								50/60 Hz coil			
								24 V			
2.2	4	4	4	20/9	KLb4S-10	1 309 021	A1 1 3 5 13 A2 2 4 6 14	110 V 230 V	0.225	M 06	
	-			20,0	KLb4S-01	1 309 031	A1 1 3 5 21 A2 2 4 6 22	permitted	0.220	00	
Versio	n with F	aston c	onnect	ors, 2 x 2.8 mm	or 1 x 6.35 mr	m			•		
								50/60 Hz coil			
								24 V			
2.2	4	4	4	20/0	KLb4F-10	1 309 121	A1 1 3 5 13 A2 2 4 6 14	110 V 230 V	0.225	M 06	
2.2	4	4	4	20/9	KLb4F-01	1 309 131	A1 1 3 5 21 A2 2 4 6 22	permitted	0.225	IVI OO	
Versio	n with s	older pi	ns, 1,7	mm Ø, hole on	p. c. b.						
								50/60 Hz coil			
								24 V			
2.2	4	4	4	20/9	KLb4L-10	1 309 221	A1 1 3 5 13 A2 2 4 6 14	110 V 230 V	0.225	M 06	
					KLb4L-01	1 309 231	A1 1 3 5 21 A2 2 4 6 22	permitted			

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request AC: 24, 110 and 230 V

Auxiliary contact block - page 1653

Other system components - page 1653

Technical details - pages 1664-1665

entrelec S014016 000623

Reversing contactors KLW ..., 3 pole 2.2 and 4 kW / 3 and 5 HP at 460 V, 3 ph. (AC 3) AC operated,

without integral coil suppressor



- Terminal numbering to DIN EN 50 005 and DIN EN 50 012
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- Bi-frequency AC coils 50/60 Hz
- High contact reliability
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536
- Mechanically interlocked as standard
- Main circuit is ready wired on contactors with screw terminals
- Suitable for rail mounting (35 mm rail) or screw fixing (4 mm dia. screw)
- Connecting screws are supplied with the clamps in the open position

Approvals: (A) (G) (D) (S)

Voltage codes 04 ... 73 to be added to the contactor order reference number for coil voltage Code Color code 1) number AC AC ... 04 12 V violet ... 06 24 V violet 32 V ... 10 violet ... 11 36 V green ... 13 42 V 48 V white white ... 19 60 V green ... 25 110 V yellow ... 28 120 V yellow ... 29 127 V 208 V yellow ... 40 230 V blue <u>... 41</u> 220 V blue ... 43 240 V blue <u>... 59</u> 400 V red red ... 63 415 V red ... 65 440 V red

600 V Our mini contactors are delivered with bi-frequency coils for 50/60 Hz.

500 V

... 69

... 73

Further notes at the bottom of this page.

black

black

Characteristics for reversing contactors KLW ..., AC operated, 4.5 VA coils

	AC 3 ratir hase mot 380 415 V		690 V	Rated operational current le AC 1/AC 3 up to 440 V A	Contactor type	Order ref.: see supplements at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673
Versio	n with s	crew ter	minals								
1.5	2.2	3	3	20/6	KLW2S-10	1 309 300	A1 1 3 5 13 1 3 5 13 A1 A1 A2 A 6 14 A2				
1.5	2.2	3	3	20/0	KLW2S-01	1 309 310	A1 1 3 5 21 1 3 5 21 A1 A1 A2 2 4 6 22 2 4 6 22 A2	without integral coil	0.39	M 06	
2.2	4	4	4	20/9	KLW4S-10	1 309 320	A1 1 3 5 13 1 3 5 13 A1 A2 A2 A 6 14 A2	suppressor	0.00	101 00	
	-	-	-	-5, 2	KLW4S-01	1 309 330	A1 1 3 5 21 1 3 5 21 A1 A1 A2 2 4 6 22 2 4 6 22 A2				
Versio	n with F	aston c	onnecto	ors, 2 x 2.8 mm	or 1 x 6.35 mr	n					
1.5	2.2	3	3	20/6	KLW2F-10	1 309 400	A1 1 3 5 13 1 3 5 13 A1 d d d d d d d d d d d d d d d d d d			M 06	
1.5	2.2	3	3	20/6	KLW2F-01	1 309 410	A1 1 3 5 21 1 3 5 21 A1 d d d d d d d d d d d d d d d d d d	without integral coil	0.37		
2.2	4	4	4	20/9	KLW4F-10	1 309 420	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	suppressor	0.37	IVI OO	
2.2	7	7	7	20/9	KLW4F-01	1 309 430	A1 1 3 5 21 1 3 5 21 A1 A1 A2 2 4 6 22 2 4 6 22 A2				
Versio	n with s	older pi	ns , 1,7 r	mm Ø, hole on i	p. c. b.		•				
1.5	2.2	3	3	20/6	KLW2L-10	1 309 500	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				
1.0	2.2	J		20/0	KLW2L-01	1 309 510	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	without integral coil suppressor	0.43	M 06	
2.2	4	4	4	20/9	KLW4L-10	1 309 520	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		0.40	J.43 IVI U0	
					KLW4L-01	1 309 530	$\begin{array}{cccccccccccccccccccccccccccccccccccc$				

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request

AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V

Auxiliary contact block - page 1653

Other system components - page 1653

Technical details - pages 1664-1665

\$014017 *000623* **entrelec**

Reversing contactors KLW ..., 3 pole 2.2 and 4 kW / 3 and 5 HP at 460 V, 3 ph. (AC 3) AC operated,

with integral coil suppressor



- Terminal numbering to DIN EN 50 005 and DIN EN 50 012
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- Bi-frequency AC coils 50/60 Hz
- High contact reliability
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536
- Mechanically interlocked as standard
- Main circuit is ready wired on contactors with screw terminals
- Suitable for rail mounting (35 mm rail) or screw fixing (4 mm dia. screw)
- Connecting screws are supplied with the clamps in the open position

Approvals: (9) (6) (9) (5)

Voltage codes 04 ... 73 to be added to the contactor order reference number

	for coil	
Code	voltage	Color code 1)
number	AC	AC
04	12 V	violet
06	24 V	violet
10	32 V	violet
11	36 V	green
13	42 V	white
15	48 V	white
19	60 V	green
25	110 V	yellow
28	120 V	yellow
29	127 V	yellow
38	208 V	blue
40	230 V	blue
41	220 V	blue
43	240 V	blue
59	400 V	red
61	380 V	red
63	415 V	red
65	440 V	red
69	500 V	black
73	600 V	black

Our mini contactors are delivered with bi-frequency coils for 50/60 Hz.

Further notes at the bottom of this page.

Characteristics for reversing contactors KLW ..., AC operated, 4.5 VA coils

	AC 3 rationase mo 380 415 V	tors	690 V	Rated operational current le AC 1/AC 3 up to 440 V A	Contactor type	Order ref.: see supplements at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673
Versio	n with s	crew te	rminals								
1.5	2.2	3	3	20/6	KLW2S-10	1 309 302	A1 1 3 5 13 1 3 5 13 A1 A1 A2 A 6 14 A2	with integral coil			
1.5	2.2	3	3	20/0	KLW2S-01	1 309 312	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	suppressor	0.39	M 06	
2.2	4	4	4	20/9	KLW4S-10	1 309 322	A1 1 3 5 13 1 3 5 13 A1 A1 A2 A2 A 6 14 A2	VDR ≃o	0.00	101 00	
	_		-		KLW4S-01	1 309 332	A1 1 3 5 21 1 3 5 21 A1 A1 A2 2 4 6 22 2 4 6 22 A2	permitted up to 240 V max.			
Versio	n with F	aston c	onnecto	ors, 2 x 2.8 mm	or 1 x 6.35 mr	m					
1.5	2.2	3		20/6	KLW2F-10	1 309 402	A1 1 3 5 13 1 3 5 13 A1 A1 A2 A 6 14 A2	with integral coil			
1.5	2.2	3	3	20/6	KLW2F-01	1 309 412	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	suppressor	0.37	M 06	
2.2	4	4	4	20/9	KLW4F-10	1 309 422	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	VDR _	0.37	IVI UG	
2.2	7	7	7	20/3	KLW4F-01	1 309 432	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	permitted up to 240 V max.			
Versio	n with s	older pi	ทร , 1,7 เ	mm Ø, hole on	o. c. b.						
1.5	2.2	3	3	20/6	KLW2L-10	1 309 502	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	with integral coil			
1.0	2.2			20/0	KLW2L-01	1 309 512	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	suppressor	0.43	M 06	
2.2	4	4	4	20/9	KLW4L-10	1 309 522	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	VDR	3.40	00	
					KLW4L-01	1 309 532	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	permitted up to 240 V max.			

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V

Auxiliary contact block - page 1653

Other system components - page 1653

Technical details - pages 1664-1665

AC-coils available with integral coil suppressor to max. 230 V

S014018 000731 entrelec

Reversing contactors KLWDC ..., 3 pole 2.2 and 4 kW / 3 and 5 HP at 460 V, 3 ph. (AC 3) DC operated,

without integral coil suppressor



- Terminal numbering to DIN EN 50 005 and DIN EN 50 012
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- High contact reliability
- Switch position indication
- With or without integral coil suppressor
- Safety isolation up to 400 V to VDE 0106, IEC 536
- Mechanically interlocked as standard
- Main circuit is prewired on contactors with screw terminals
- Suitable for rail mounting (35 mm rail) or screw fixing (4 mm dia. screw)
- Connecting screws are supplied with the clamps in the open position
- Approvals: (A) (G) (D) (S)

Voltage codes 04 ... 40 to be added to the contactor order reference number Code voltage Color code 19 number DC DC

Code	voitage	Color code "
number	DC	DC
04	12 V	green
06	24 V	green
10	32 V	green
11	36 V	green
13	42 V	green
15	48 V	green
19	60 V	green
25	110 V	green
28	120 V	green
29	125 V	green
38	208 V	green
40	220 V	green

Further notes at the bottom of this page.

Characteristics for reversing contactors KLWDC ..., DC operated, 3 W coils

	380 415 V		690 V	Rated operational current le AC 1/AC 3 up to 440 V	Contactor type	Order ref.: see supplements at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673
Versio	n with s	crew ter	minals								
1.5	2.2	3	3	20/6	KLWDC2S-10	1 309 305	A1 1 3 5 13 1 3 5 13 A1 A1 A2 A2 A 6 14 A2				
1.5	2.2	3		20/0	KLWDC2S-01	1 309 315	A1 1 3 5 21 1 3 5 21 A1 A1 A2 2 4 6 22 2 4 6 22 A2	without integral coil	0.39	M 06	
2.2	4	4	4	20/9	KLWDC4S-10	1 309 320	A1 1 3 5 13 1 3 5 13 A1 d d d d d d d d d d d d d d d d d d	suppressor			
					KLWDC4S-01	1 309 335	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$				
Versio	n with F	aston c	onnecto	ors, 2 x 2.8 mm	or 1 x 6.35 mm						
1.5	2.2	3	3	20/6	KLWDC2F-10	1 309 405	$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
1.5	2.2	3	3	20/0	KLWDC2F-01	1 309 415	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	without integral coil	0.39	M 06	
2.2	4	4	4	20/9	KLWDC4F-10	1 309 320	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	suppressor	0.00	IVI OO	
2.2			•	20/0	KLWDC4F-01	1 309 435	A1 1 3 5 21 1 3 5 21 A1 A1 A2 2 4 6 22 2 4 6 22 A2				
Versio	n with s	older pi	ทร , 1,7 เ	mm Ø, hole on	p. c. b.						
1.5	2.2	3	3	20/6	KLWDC2L-10	1 309 505	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				
1.5	۷.۲	3	3	20/0	KLWDC2L-01	1 309 515	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	without integral coil	0.39	M 06	
2.2	4	4	4	20/9	KLWDC4L-10	1 309 320	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	suppressor	0.00	55	
					KLWDC4L-01	1 309 535	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request DC: 24, 110 and 220 V

Auxiliary contact block - page 1653

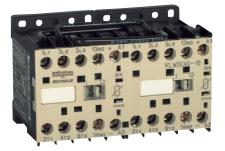
Other system components - page 1653

Technical details - pages 1664-1665

sol4019 000731 entrelec

Reversing contactors KLWDC ..., 3 pole 2.2 and 4 kW / 3 and 5 HP at 460 V, 3 ph. (AC 3) DC operated,

with integral coil suppressor



- Terminal numbering to DIN EN 50 005 and DIN EN 50 012
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors
- solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- High contact reliability
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536
- Mechanically interlocked as standard
- Main circuit is prewired on contactors with screw terminals
- Suitable for rail mounting (35 mm rail) or screw attached (4 mm dia. screw)
- Connecting screws are supplied with the clamps in the open position
- Approvals: (A) (G) (D) (S)

Voltage codes 04 ... 40 to be added to the contactor order reference number

	for coil	I
Code	voltage	Color code 1)
number	DC	DC
04	12 V	green
06	24 V	green
10	32 V	green
11	36 V	green
13	42 V	green
15	48 V	green
19	60 V	green
25	110 V	green
28	120 V	green
29	125 V	green
38	208 V	green
40	220 V	green

Further notes at the bottom of this page.

Characteristics for reversing contactors KLWDC ..., DC operated, 3 W coils

	380 415 V		690 V	Rated operational current le AC 1/AC 3 up to 440 V A	Contactor type	Order ref.: see supplements at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673
Versio	n with s	crew te	minals								
1.5	2.2	3	3	20/6	KLWDC2S-10	1 309 306	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	with integral coil			
1.5	2.2	3	3	20/0	KLWDC2S-01	1 309 316	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	suppressor	0.48	M 06	
2.2	4	4	4	20/9	KLWDC4S-10	1 309 326	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	A2	0.40	101 00	
	-	•	-		KLWDC4S-01	1 309 336	A1 1 3 5 21 1 3 5 21 A1 A1 A2 2 4 6 22 2 4 6 22 A2	permitted up to 240 V			
Versio	n with F	aston c	onnecto	ors, 2 x 2.8 mm	or 1 x 6.35 mm	I					
1.5	2.2	3	3	20/6	KLWDC2F-10	1 309 406	A1 1 3 5 13 1 3 5 13 A1 A1 A2 A 6 14 A2	with integral coil			
1.5	2.2	3	3	20/6	KLWDC2F-01	1 309 416	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	suppressor	0.46	M 06	
2.2	4	4	4	20/9	KLWDC4F-10	1 309 426	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		0.46	IVI UB	
2.2	7	7	7	20/3	KLWDC4F-01	1 309 436	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	permitted up to 240 V			
Versio	n with s	older pi	ns , 1,7 r	mm Ø, hole on	p. c. b.						
1.5	2.2	3	3	20/6	KLWDC2L-10	1 309 506	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	with integral coil			
1.5	2.2	ა 	ა 	20/0	KLWDC2L-01	1 309 516		suppressor	0.52	M 06	
2.2	4	4	4	20/9	KLWDC4L-10	1 309 526	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	A A A	0.02	W 00	
	-				KLWDC4L-01	1 309 536	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	permitted up to 240 V			

Notes

Normal/Standard voltages are: (Short-term availability)

DC: 24, 110 and 220 V

Auxiliary contact block - page 1653

Other coil voltages on request

Other system components - page 1653

DC-coils available with integral coil suppressor to max. 220 $\rm V$

Technical details - pages 1664-1665

Color code to IEC 309-1 printed on the coil.

Only for compact contactors, HL 4 K / HL 8 K and DL 4 K - DL 18 K

entrelec S014020 000623

Reversing contactors KLWb ..., 3 pole 4 kW / 5 HP at 460 V, 3 ph. (AC 3) Terminal numbering to DIN EN 50 005 and AC operated, hum-free for special applications



- DIN EN 50 012
- Compact design
- Available in 3 versions:
- with screw terminals
- Faston connectors - solder pins
- Version with solder pins includes front face screw terminals for direct connection to load
- Low power consumption coils
- Bi-frequency AC coils 50/60 Hz
- High contact reliability
- Switch position indication
- Safety isolation up to 400 V to VDE 0106, IEC 536
- KLWb contactors are hum-free which makes them suitable for use in building equipment, etc.
- Magnet coil with integral rectifier and coil suppressor
- Mechanically interlocked as standard
- Main circuit is prewired on contactor with screw terminals
- Suitable for rail mounting (35 mm rail) or screw attached (4 mm dia. screw)
- Connecting screws are supplied with the clamps in the open position

Approvals: (a) (f) (D) (S)

Voltage codes 04 ... 73 to be added to the contactor order reference number for coil Color code 1) Code voltage number AC AC ... 04 12 V violet ... 06 24 V violet ... 10 32 V violet ... 11 36 V green 42 V ... 13 white ... 15 48 V white ... 19 60 V green ... 25 110 V yellow ... 28 120 V yellow ... 29 127 V 208 V yellow blue ... 40 230 V blue 220 V ... 41 blue ... 43 240 V blue ... 59 ... 61 400 V 380 V red red ... 63 415 V red

600 V Our mini contactors are delivered with bi-frequency coils for 50/60 Hz.

440 V

500 V

... 65

<u>... 6</u>9

... 73

Further notes at the bottom of this page.

red

black

black

Characteristics for reversing contactors KLWb ..., AC operated, 3 VA coils

	AC 3 rationals mase model 380 415 V		690 V	Rated operational current le AC 1/AC 3 up to 440 V A	Contactor type	Order ref.: see supple- ments at the top right	Circuit diagram to DIN EN 50 005 and DIN EN 50 012	Features	Weight kg	Suitable thermal overload relay	For dimensions see page 1673
Versio	n with s	crew ter	minals								
								50/60 Hz coil 24 V	0.48	M 06	
2.2	4	4	4	20/9	KLWb4S-10	1 309 321	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	110 V 230 V	0.40	IVI OO	
2.2	•	4	4	20/9	KLWb4S-01	1 309 331	A1 1 3 5 21 1 3 5 21 A1 A1 A2 2 4 6 22 2 4 6 22 A2	permitted			
Versio	n with F	aston c	onnecto	ors, 2 x 2.8 mm	or 1 x 6.35 mm	1					
								50/60 Hz coil			
2.2	4	4	4	20/9	KLWb4F-10	1 309 421	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	24 V 110 V 230 V	0.46	M 06	
	•	,	·	20/0	KLWb4F-01	1 309 431	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	permitted			
Versio	n with s	older pi	ns , 1,7 r	mm Ø, hole on	p. c. b.				1		
								50/60 Hz			
								coil 24 V	0.52		
2.2	4	4	4	20/9	KLWb4L-10	1 309 521	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	110 V 230 V	0.52	M 06	
	-				KLWb4L-01	1 309 531	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	permitted			

Notes

Normal/Standard voltages are: (Short-term availability) Other coil voltages on request

AC: 24, 110 and 230 V

Auxiliary contact block - page 1653

Other system components - page 1653

Technical details - page 1664-1665

S014022 000623 entrelec

Mini contactors: system components for use with control relays, contactors and reversing contactors



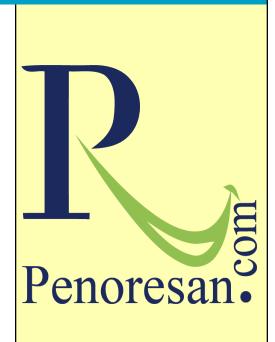






- Auxiliary contact blocks, 2- or 4-pole, front fitting
- Compact in size, mounts quickly
- Available in 2 versions :
- S = screw terminals
- F = Faston connectors
- Contact positioning and numbering to DIN EN 50011 on types HS/HF when mounted to control relays with 4 N/O contacts
- When mounted to contactors, DIN EN 50012 is maintained when LS contacts are used
- High contact reliability
- Switch position indication
- 3 front mounting coil suppressor versions with LED indicators
- Front mounting timer module, delay on energization up to 30 seconds





Characteristics

Top mounting

Auxiliary contact blocks

for use with KL ..., KLW contactors

for use with KH ..., KHDC ..., KHi control relays

Top mounting				
for contactors	Туре	Circuit diagram	Order ref.:	
DIN EN 50 012	LS-11	21 33 \ 22 34	3 309 001 01	
	LS-02	21 31 1 1 22 32	3 309 002 01	
KL KLW	LS-13	21 31 41 53 	3 309 005 01	
KLW	LS-22	21 31 43 53 	3 309 004 01	
	LS-31	21 33 43 53 	3 309 003 01	
	HS-02	51 61	3 309 033 01	
	HF-02	52 62	3 309 043 01	
	HS-04	51 61 71 81 	3 309 038 01	
	HF-04		3 309 048 01	
	HS-11	53 61	3 309 032 01	
	HF-11	54 62	3 309 042 01	
KH, KHDC,	HS-13	53 61 71 81 \	3 309 037 01	
KHi	HF-13	54 62 72 82	3 309 047 01	
	HS-20	23 63 23 63	3 309 031 01	
	HF-20]] 54 64	3 309 041 01	
	HS-22	53 61 71 83	3 309 036 01	
	HF-22	54 62 72 84	3 309 046 01	
	HS-31	53 61 73 83 \ \= -\\	3 309 035 01	
	HF-31	54 62 74 84	3 309 045 01	
	HS-40	53 63 73 83 \ \ \ \ \ \ \ \ \ \ \ \ \ \	3 309 034 01	
	HF-40	54 64 74 84	3 309 044 01	

Weight: 0.045 kg

Coil suppressors with built in LED indicator

RC coil suppressor (for AC operated contactor)

Туре	Voltage range	Order ref.:
RC-250 ¹⁾	220250 V	3 309 062 01

Diode coil suppressor (for DC operated contactor)

Туре	Voltage range	Order ref.:	
D-24 ²⁾	1224 =	3 309 061 01	
D-48 ²⁾	3248 =	3 309 061 02	

Varistor coil suppressor (for AC or DC operated contactor)

Туре	Voltage range	Order ref.:
V-24 ³⁾	1224 AC/DC	3 309 060 01
V-48 ³⁾	3248 AC/DC	3 309 060 02
V-130 ³⁾	40129 AC/DC	3 309 060 04
V-250 ³⁾	130250 AC/DC	3 309 060 05

Weight: 0.010 kg

Timer module snaps to the front of contactor

Туре	Timer range	Voltage range input/coil	Order ref.:	
HV-48	130	2448 V AC/DC	3 309 050 01	
HV-240	130	110240 V AC	3 309 050 02	

Weight: 0.040 kg

Technical details:

- Relay outputs
- 240 V AC/DC, 2 A max.
- Max. switching capacity 250 VA / 150 W
- Control voltage range 0.85...1.1 V_c
- Permissible ambient temperature -10°C ... +60°C
- Reset time:
- 1.5 secs while timing0.5 secs after timing

Circuit diagram :



Explanation:

- ... S = screw terminals
- ... F = Faston connectors
 - on KHi only 2-pole versions permitted!

Notes

- Limits transient voltage to max. 3 Vc. Slight increase in drop-out time (1.2 to 2 times the normal time).
- No interference by transient voltages and high frequency. Observe polarity when connecting. Slight increase in drop-out time (1.1 to 1.5 times the normal time).
- Limits transient voltages to max. 2 Vc. Max. reduction of transient voltage peaks. Slight increase in drop-out time (1.1 to 1.5 times the normal time).

Technical details - pages 1664-1666

Dimensions - page 1673

Voltage code numbers 04 ...73 to be added to the contactor order reference number for mini contactors

Code number	for coil voltage		Color code ¹⁾	
	AC	DC	AC	DC
04	12 V		violet	green
06	24 V		violet	green
10	32 V		violet	green
11	36 V		green	green
13	42 V		white	green
15	48 V		white	green
19	60 V		green	green
25	110 V		yellow	green
28	120 V		yellow	green
29	127 V	125 V	yellow	green
38	208 V		blue	green
40	230 V	220 V	blue	green
41	220 V		blue	-
43	240 V		blue	-
59	400 V		red	-
61	380 V		red	-
63	415 V		red	-
65	440 V		red	-
69	500 V		black	-
73	600 V		black	-

Our control relays, compact contactors and mini contactors are delivered with bi-frequency coils for 50/60 Hz.

Our N-contactors are available with mono-frequency coils for 50 or 60 Hz.



Notes

Normal/Standard voltages are: (Short-term availability)

AC: 24, 42, 110, 230 and 400 V DC: 24, 110 and 220 V

Other coil voltages on request