

# Mini Contactor Relays 4-pole

# AC Operated

Ratings		Therm.	Contacts <sup>2)</sup>		Distinc. Number	Additional Contact	Type	Coil voltage <sup>1)</sup>	
AC15			Rated Current						
230V A	400V A	$I_{th}$ A	NO	NC	acc. to EN50011	Blocks Type			
			↓	↓				24	24V 50/60Hz
								230	220-230V 50Hz
								24VS	24V 50/60Hz w. protection <sup>3)</sup>
								230VS	220-230V 50Hz w. protection <sup>3)</sup>
								24VM	24V 50/60Hz 24V= DC
								230VM	220-240V 50/60Hz 220V= DC
								↓	Pack Weight pcs. kg/pc.

## 4-pole, With Screw Terminals



3	2	10	4	-	40E	1 HK..	K1-07D40 ...	10	0,16
3	2	10	3	1	31E	1 HK..	K1-07D31 ...	10	0,16
3	2	10	2	2	22E	1 HK..	K1-07D22 ...	10	0,16

# Auxiliary Contact Blocks For Contactor Relays



Ratings		Thermal	Contacts <sup>2)</sup>		Type	Pack	Weight
AC15		Rated	NO	NC		pcs.	kg/pc.
230V A	400V A	Current A					
3	2	10	1	1	HK11	10	0,04
3	2	10	-	2	HK02	10	0,04
3	2	10	2	-	HK20	10	0,04
3	2	10	4	-	HK40	10	0,04
3	2	10	2	2	HK22	10	0,04
3	2	10	-	4	HK04	10	0,04

Aux. Contact Blocks

HK11

HK02

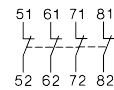
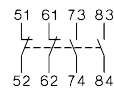
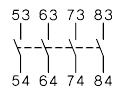
HK20

HK40

HK22

HK04

Wiring Diagrams



Distinc. Number according to EN50011 for Contactor Relay with Auxiliary Contact Block

K1-07D40	51E	42E	60E	80E	62E	44E
K1-07D31	42Y	33Y	51Y	71Y	53Y	35Y
K1-07D22	33Y	24Y	42Y	62Y	44Y	26Y



Preferable combinations with distinctive letter "E" according to DIN EN 50011

1) Other coil voltages see page 24

2) Contacts suitable for electronic circuits, according to EN947-5-4 for rated voltage 24V DC (test ratings 17V DC, 5mA) Mirror contacts acc. IEC60947-4-1 Annex F.

3) with built-in coil suppressor (varistor)

## DC Solenoid Operated

Type	Coil voltage <sup>1)</sup>		Contacts <sup>2)</sup>		Distinc. Number acc. to EN50011	Additional Contact Blocks Type	Pack pcs.	Weight kg/pc.	Wiring Diagrams
	24	24VS	NO	NC					
<b>4-pole, With Screw Terminals, Coil 2,5W</b>									
	K1-07D40= ...		4	-	40E	1 HK..	10	0,19	
	K1-07D31= ...		3	1	31E	1 HK..	10	0,19	
	K1-07D22= ...		2	2	22E	1 HK..	10	0,19	
<b>4-pole, With Screw Terminals, Coil 1,5W, 19 to 30V DC with suppressor <sup>3)</sup></b>									
	K1-07D40= 24VR		4	-	-	-	10	0,20	
	K1-07D31= 24VR		3	1	-	-	10	0,20	
	K1-07D22= 24VR		2	2	-	-	10	0,20	

1) Other coil voltages on request

2) Contacts suitable for electronic circuits, according to EN947-5-4 for rated voltage 24V DC (test ratings 17V DC, 5mA) Mirror contacts acc. IEC60947-4-1 Annex F.

3) with integrated coil suppressor (Transient Voltage Suppressor Diode)

## Mini Contactors

## AC Operated

Power Ratings	Rated Current	Aux. Contacts <sup>2)</sup>		Type	Coil voltage <sup>1)</sup>	Pack pcs.	Weight kg/pc.
		Built-in	Additional				
AC2, AC3 <b>380V</b> <b>400V</b> <b>415V</b> <b>kW</b>	660V 690V A	AC1			<b>24</b> 24V 50/60Hz <b>230</b> 220-230V 50Hz <b>24VS</b> 24V 50/60Hz w. protection <sup>3)</sup> <b>230VS</b> 220-230V 50Hz w. protection <sup>3)</sup> <b>24VM</b> 24V 50/60Hz 24V= DC <b>230VM</b> 220-240V 50/60Hz 220V= DC		
			NO NC				

### 3-pole, With Screw Terminals



<b>4</b>	4	20	1	-	1 HKM..	<b>K1-09D10</b> ...	10	0,16
<b>5,5</b>	5,5	20	1	-	1 HKM..	<b>K1-12D10</b> ...	10	0,16
<b>4</b>	4	20	-	1	1HK..	<b>K1-09D01</b> ...	10	0,16
<b>5,5</b>	5,5	20	-	1	1HK..	<b>K1-12D01</b> ...	10	0,16

### 4-pole, With Screw Terminals

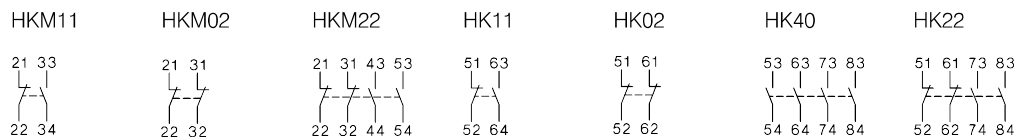
<b>4</b>	4	20	-	-	1HK..	<b>K1-09D00-40</b> ...	10	0,16
<b>5,5</b>	5,5	20	-	-	1HK..	<b>K1-12D00-40</b> ...	10	0,16

## Auxiliary Contact Blocks for Contactors K1-..

Ratings	Thermal Rated Current	Contacts <sup>2)</sup>	Type	Pack pcs.	Weight kg/pc.
AC15 <b>230V</b> <b>A</b>	400V A	NO NC			
<b>3</b>	2	10	1 1	<b>HKM11</b>	10 0,04
<b>3</b>	2	10	- 2	<b>HKM02</b>	10 0,04
<b>3</b>	2	10	2 2	<b>HKM22</b>	10 0,04

### Aux. Contact Blocks

### Wiring Diagrams



Contactors with Auxiliary Contact Block  
Contacts according to EN50012  
K1-..D10

<b>21</b>	<b>12</b>	<b>32</b>	-	-	-	-
-----------	-----------	-----------	---	---	---	---

Contacts according to DIN EN50005

K1-..D01	-	-	-	12	03	41	23
K1-..D00-40	-	-	-	11	02	40	22

Prefer combinations according to EN50012

## Suppressor Units for Contactors K1-..



Voltage Range V	Type	Pack pcs.	Weight kg/pc.
12 - 48V AC/DC	<b>RC-K1 24</b>	10	0,01
48 - 127V AC/DC	<b>RC-K1 110</b>	10	0,01
110 - 250V AC/DC	<b>RC-K1 230</b>	10	0,01

1) Other coil voltages see page 24

2) Contacts suitable for electronic circuits, according to EN947-5-4 for rated voltage 24V DC (test ratings 17V DC, 5mA) Mirror contacts acc. IEC60947-4-1 Annex F.

3) with built-in coil suppressor (varistor)

# DC Solenoid Operated

## Type

Coil voltage <sup>1)</sup>  
**24** 24V= DC  
**24VS** 24V= DC with protection <sup>3)</sup>



Aux. Contacts <sup>2)</sup>  
 Built in Additional  
 NO NC

Additional Overload Relay  
 see page 114  
 Type

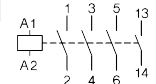
Pack pcs. Weight kg/pc.

Wiring Diagrams

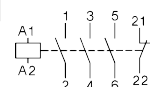


### 3-pole, With Screw Terminals, Coil 2,5W

K1-09D10= . . .	1	-	1 HKM..	U12/16..K1	10	0,19
K1-12D10= . . .	1	-	1 HKM..	U12/16..K1	10	0,19

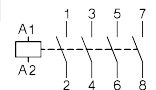


K1-09D01= . . .	-	1	1 HK..	U12/16..K1	10	0,19
K1-12D01= . . .	-	1	1 HK..	U12/16..K1	10	0,19



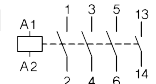
### 4-pole, With Screw Terminals, Coil 2,5W

K1-09D00-40= . . .	-	-	-	U12/16..K1	10	0,19
K1-12D00-40= . . .	-	-	-	U12/16..K1	10	0,19

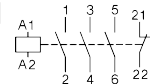


### 3-pole, With Screw Terminals, Coil 1,5W, 19 to 30V DC with suppressor <sup>3)</sup>

K1-09D10=24VR	1	-	-	U12/16..K1	10	0,20
---------------	---	---	---	------------	----	------



K1-09D01= 24VR	-	1	-	U12/16..K1	10	0,20
----------------	---	---	---	------------	----	------



1) Other coil voltages on request  
 2) Contacts suitable for electronic circuits, according to EN947-5-4 for rated voltage 24V DC (test ratings 17V DC, 5mA) Mirror contacts acc. IEC60947-4-1 Annex F.  
 3) with integrated coil suppressor (Transient Voltage Suppressor Diode)

Power Ratings	Rated Current	Aux. Contacts <sup>2)</sup>		Type	Coil voltage <sup>1)</sup>	
		Built in	Additional		24	24V DC
AC2, AC3	AC1				24V 50/60Hz	
<b>380V</b>					220-230V 50Hz	
<b>400V</b>	660V				24V 50/60Hz w. protection <sup>2)</sup>	
<b>415V</b>	690V	690V			220-230V 50Hz w. protection <sup>2)</sup>	
<b>kW</b>	<b>kW</b>	<b>A</b>			24V 50/60Hz 24V DC	
			NO NC	Type	230VM 220-240V 50/60Hz 220V DC	
					↓	Pack Weight pcs. kg/pc.

3-pole, with Fast On Tab Connectors 1 x 6,3mm or 2 x 2,8mm



4	4	16	1	-	1 HKM..	<b>K1-09F10</b> ...	10	0,16
4	4	16	-	1	1 HK..	<b>K1-09F01</b> ...	10	0,16

3-pole, with Solder Pins Ø1,15 for Printed Circuit Applications



4	4	16	1	-	-	<b>K1-09L10</b> ...	10	0,16
4	4	16	-	1	-	<b>K1-09L01</b> ...	10	0,16

4-pole, with Solder Pins Ø1,15 for Printed Circuit Applications

4	4	16	-	-	-	<b>K1-09L00-40</b> ...	10	0,16
---	---	----	---	---	---	------------------------	----	------

Coil voltages for AC operated contactors

Suffix to contactor type e.g. K1-09D10 24	Voltage Marking at the coil		Rated Control Voltage U <sub>s</sub> range			
	for 50Hz	for 60Hz	for 50Hz		for 60Hz	
	V	V	min.	max.	min.	max.
12	12	12	11	12	12	12
<b>24</b>	<b>24</b>	<b>24</b>	<b>22</b>	<b>24</b>	<b>24</b>	<b>24</b>
42	42	42	38,5	42	42	42
48	48	48	48	50	48	52
90	100	100	90	100	100	105
95	95-100	105-110	95	100	105	110
100	100	110-115	100	105	110	115
105	105-110	115-120	105	110	115	120
110	110-115	120-125	110	115	120	125
180	200	200	185	200	200	210

Suffix to contactor type e.g. K1-09D10 230	Voltage Marking at the coil		Rated Control Voltage U <sub>s</sub> range			
	for 50Hz	for 60Hz	for 50Hz		for 60Hz	
	V	V	min.	max.	min.	max.
200	200	200-220	195	205	200	220
210	205-215	220-230	205	215	220	230
220	210-220	220-240	210	220	220	240
<b>230</b>	<b>220-230</b>	<b>230-250</b>	<b>220</b>	<b>230</b>	<b>230</b>	<b>250</b>
240	230-240	240-260	230	240	240	260
400	380-400	400-440	380	400	400	440
500	475-500	520-545	475	500	520	545
550	525-550	600	525	550	570	600

Standard voltages in bold type letters

Operating range of magnet-coils: 0,85 x U<sub>s</sub> (min. value of rated control voltage) up to 1,1 x U<sub>s</sub> (max. value of rated control voltage)

Coil not exchangeable

1) Other coil voltages see page 24

2) Contacts suitable for electronic circuits, according to EN947-5-4 for rated voltage 24V DC (test ratings 17V DC, 5mA) Mirror contacts acc. IEC60947-4-1 Annex F.



3) with built-in coil suppressor (varistor)

# DC Solenoid Operated

## Type

Coil voltage <sup>1)</sup>  
**24** 24V= DC  
**24VS** 24V= DC with protection <sup>3)</sup>



Aux. Contacts <sup>2)</sup>  
 Built in Additional  
   
 NO NC

Additional Overload Relay see pages 115, 117 Type

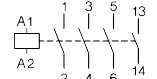
Pack pcs. Weight kg/pc.

Wiring Diagrams

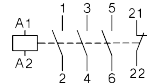
### 3-pole, with Fast On Tab Connectors 1 x 6,3mm or 2 x 2,8mm



K1-09F10= . . . 1 - 1 HKM.. <sup>4)</sup> 10 0,19



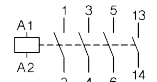
K1-09F01= . . . - 1 1 HK.. <sup>4)</sup> 10 0,19



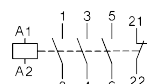
### 3-pole, with Solder Pins Ø1,15 for Printed Circuit Applications



K1-09L10= . . . 1 - - - 10 0,19

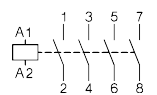


K1-09L01= . . . - 1 - - 10 0,19



### 4-pole, with Solder Pins Ø1,15 for Printed Circuit Applications

K1-09L00-40= . . . - - - - 10 0,19



1) Other coil voltages on request  
 2) Contacts suitable for electronic circuits, according to EN947-5-4 for rated voltage 24V DC (test ratings 17V DC, 5mA) Mirror contacts acc. IEC60947-4-1 Annex F.  
 3) with integrated coil suppressor (Transient Voltage Suppressor Diode)  
 4) U12/16E K3 with U12SMK3 for single mounting