

Kraus & Naimer

BLUE LINE switchgear

www.krausnaimer.com

SINCE 1907

According to CE,
IEC 947, EN 60947



Contactor Catalogue



3 Pole & 4 Pole Contactors 4kW - 160kW



Thermal Overload



Mini-Contactors



DC Contactors



Mini-Relays 10A



Motor Starter



Capacitor Switching



Modular Contactors

Mini Contactors

- Compact frame size up to AC3 5.5kW
- Screw connection terminals
- Din Rail or Screw Base Mount



AC3 380-415V kW	AC1 Rated Current A	Auxiliary NO	Contact NC	Type
3P-AC Operated				* 230Vac coil voltage
4.5	20	1	-	9B-K1-09D10A230
4.5	20	-	1	9B-K1-09D01A230
5.5	20	1	-	9B-K1-12D10A230
5.5	20	-	1	9B-K1-12D01A230
3P-DC Operated				* 24Vdc coil voltage
4.5	20	1	-	9B-K1-09D10 D024
4.5	20	-	1	9B-K1-09D01 D024
5.5	20	1	-	9B-K1-12D10 D024
5.5	20	-	1	9B-K1-12D01 D024
4P-AC Operated				* 230Vac coil voltage
4.5	20	-	-	9B-K1-09 D00-40 A230
4.5	20	1	-	9B-K1-09 D00-40 A230 SIS0010
4P-DC Operated				* 24Vdc coil voltage
4.5	20	-	-	9B-K1-09 D00-40 D024
4.5	20	1	-	9B-K1-09 D00-40 D024 SIS0010

* **Coil Voltage Coding**

Code	Voltage
A024	24V 50Hz
A042	42V 50Hz
A110	110V 50Hz/120V 60Hz
A230	220V-240V 50Hz
A400	380-415V 50Hz
D012	12 Vdc
D048	48 Vdc
D110	110 Vdc

Other Coil Voltages, Please consult us.

Mini Relays

- 10A thermal I_{th} rating
- Suitable for electronic circuit
- Din Rail or Screw Base Mounting
- Screw terminals
- Add Aux Contact Block - up to 8 contacts available



AC15 230V A	I_{th} Thermal Current A	Contact		Type
		NO	NC	
Mini Relay AC Operated				* 230Vac coil voltage
3	10	4	-	9B-K1-07D40 A230
3	10	3	1	9B-K1-07D31 A230
3	10	2	2	9B-K1-07D22 A230
3	10	-	4	9B-K1-07D04 A230
Mini Relay DC Operated				* 24Vdc coil voltage
3	10	4	-	9B-K1-07D40 D024
3	10	3	1	9B-K1-07D31 D024
3	10	2	2	9B-K1-07D22 D024
3	10	-	4	9B-K1-07D22 D024

Auxiliary Add-ON Contacts Blocks for MINI Relays and MINI Contactors				
AC15 230V A	I_{th} Thermal Current A			Type
		NO	NC	
3	10	1	1	9B-HK11
3	10	-	2	9B-HK02
3	10	2	-	9B-HK20
3	10	4	-	9B-HK40
3	10	2	2	9B-HK22
3	10	-	4	9B-HK04

Ordering Example: Required 4 NO + 4NC relay contacts (coil AC230) :-

Order : 1pc **9B-K1-07D40A230** (4 NO) + 1pc **9B-HK04** (4 NC)



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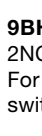
Coil Voltage Coding	
Code	Voltage
A024	24V 50Hz
A042	42V 50Hz
A110	110V 50Hz/120V 60Hz
A230	220V-240V 50Hz
A400	380-415V 50Hz
D012	12 Vdc
D048	48 Vdc
D110	110 Vdc

Other Coil Voltages, Please consult us.

Contactors 3-pole

- Up to 315A AC3
- Up to 500A AC1
- DIN-rail mounting up to AC3 115A
- International Approvals
- Data according to IEC 947 / EN 60947

Ratings						
AC3	400V	Motor	10A	14A	18A	22A
		380-400V	4kW	5.5kW	7.5kW	11kW
		660-690V	5.5kW	7.5kW	10kW	10kW
AC1	690V at 40°C		25A	25A	32A	32A
Auxiliary contacts		Type				
		*230AC Coil				
NO	NC	9BK310A10A230	9BK314A10A230	9BK318A10A230	9BK322A10A230	
1	0	9BK310A01A230	9BK314A01A230	9BK318A10A230	9BK322A10A230	
0	1	-	-	-	-	
1	1	-	-	-	-	
0	0	-	-	-	-	
Cable cross-section						
Solid	mm ²			0,75 - 6		
Flexible	mm ²			1 - 4		
Cables per clamp				2		
Auxiliary contact						
I _{th}	40°C	A		16		
AC15	230V	A		12		
	400V	A		4		
Power consumption of coils						
	Inrush VA			33 - 45		
	hold VA			7 - 10		
Operation range of coils				0.85 - 1.1		
Mounting		35mm DIN-rail or base				
Additional aux. contact blocks		 9BHN10 1NO For low level switching  9BHN10 1NC For low level switching Maximum 4 HN..				
Additional aux. contact blocks		-	-	-	-	
Overload Relay (thermal)						
Single phase protection		TOR FOR K3-10 TO K3-22		TOR FOR K3-10 TO K3-22		
Temperature compensation		Setting Ranges		Setting Ranges		
Trip and alarm contacts		Type		Type		
		0.12 - 0.18A		2.7 - 4.0A		
		9BU12/16E0.18		9BU12/16E4		
		0.18 - 0.27A		4.0 - 6.0A		
		9BU12/16E0.27		9BU12/16E6		
		0.27 - 0.4A		6.0 - 9.0A		
		9BU12/16E0.4		9BU12/16E9		
		0.4 - 0.6A		8.0 - 11.0A		
		9BU12/16E0.6		9BU12/16E11		
		0.6 - 0.9A		10.0 - 14.0A		
		9BU12/16E0.9		9BU12/16E14		
		0.8 - 1.2A		13.0 - 18.0A		
		9BU12/16E1.2		9BU12/16E18		
		1.2 - 1.8A		17.0 - 23.0A		
		9BU12/16E1.8		9BU12/16E23		
		1.8 - 2.7A		22.0 - 30.0A		
		9BU12/16E2.7		9BU12/16E30		




Ratings																
AC3	400V	Motor	24A	32A												
		380-400V	11kW	15kW												
		660-690V	15kW	18.5kW												
AC1	690V at 40°C		50A	65A												
				80A												
Auxiliary contacts			Type													
			*230AC Coil													
NO	NC		9BK324A00A230 SIS0010	9BK32A00A230 SIS0010												
1	0		-	-												
0	1		-	-												
1	1		-	-												
0	0		9BK324A00A230	9BK32A00A230												
				9BK340A00A230 SIS0010												
				-												
				-												
				9BK340A00A230												
Cable cross-section																
Solid		mm ²	1.5 - 25													
Flexible		mm ²	2.5 - 16													
Cables per clamp			1 + 1													
Auxiliary contact																
I _{th}	40°C	A	-													
AC15	230V	A	-													
	400V	A	-													
Power consumption of coils																
	Inrush VA		90 - 115													
	hold VA		9 - 13													
	Operation range of coils		0.85 - 1.1													
Mounting			35mm DIN-rail or base													
Additional aux. contact blocks																
Front mounting	Type			9BHN10 1NO For low level switching												
contacts				9BHN10 1NC For low level switching												
				Maximum 4 HN..												
Additional aux. contact blocks																
Side mounting	Type			9BHB11 1NO+1NC For low level switching												
contacts				9BHB02 2NC For low level switching												
				Maximum 2HB..												
Overload Relay (thermal)																
Single phase protection																
Temperature compensation																
Trip and alarm contacts																
			<table border="1"> <thead> <tr> <th colspan="2">TOR FOR K3-24 TO K3-40</th> </tr> <tr> <th>Setting Ranges</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>10 - 14A</td> <td>9BU3/4214</td> </tr> <tr> <td>14 - 20A</td> <td>9BU3/4220</td> </tr> <tr> <td>20 - 28A</td> <td>9BU3/4228</td> </tr> <tr> <td>28 - 42A</td> <td>9BU3/4242</td> </tr> </tbody> </table>		TOR FOR K3-24 TO K3-40		Setting Ranges	Type	10 - 14A	9BU3/4214	14 - 20A	9BU3/4220	20 - 28A	9BU3/4228	28 - 42A	9BU3/4242
TOR FOR K3-24 TO K3-40																
Setting Ranges	Type															
10 - 14A	9BU3/4214															
14 - 20A	9BU3/4220															
20 - 28A	9BU3/4228															
28 - 42A	9BU3/4242															




Standard Coil Voltage	
Code	Voltage
A024	24V AC
A042	42V AC
A110	110V 50Hz/120V 60Hz
A200	220V 60Hz
A230	230V 50Hz
A400	380-415V 50Hz/ 400-440V 60Hz
D024	24V DC
D048	48V DC
D110	110V DC
D220	220V DC

Other coil voltage, please consult us.

Contactors 3-pole



- Up to 315A AC3
- Up to 500A AC1
- DIN-rail mounting up to AC3 115A
- International Approvals
- Data according to IEC 947 / EN 60947

Ratings																		
AC3	400V	Motor	50A	62A														
		380-400V	22kW	30kW														
		660-690V	30kW	37kW														
AC1	690V at 40°C		110A	120A														
				130A														
Auxiliary contacts			Type															
			*230AC Coil															
NO	NC		9BK350A00A230 SIS0010	9BK362A00A230 SIS0010														
1	0		-	-														
0	1		-	-														
1	1		-	-														
0	0		9BK350A00A230	9BK362A00A230														
				9BK374A00A230 SIS0010														
				-														
				-														
				9BK374A00A230														
Cable cross-section																		
Solid		mm ²	4 - 50															
Flexible		mm ²	10 - 35															
Cables per clamp			1 + 1															
Auxiliary contact																		
I _{th}	40°C	A	-															
AC15	230V	A	-															
	400V	A	-															
Power consumption of coils																		
	Inrush VA		140 - 165															
	hold VA		13 - 18															
	Operation range of coils		0.85 - 1.1															
Mounting			35mm DIN-rail or base															
Additional aux. contact blocks																		
Front mounting	Type		 9BHN10 1NO For low level switching	 9BHN10 1NC For low level switching														
contacts				Maximum 4 HN..														
Additional aux. contact blocks																		
Side mounting	Type		 9BHB11 1NO+1NC For low level switching	9BHB02 2NC For low level switching														
contacts				Maximum 2HB..														
Overload Relay (thermal)																		
Single phase protection			<table border="1"> <thead> <tr> <th colspan="2">TOR FOR K3-50 TO K3-74</th> </tr> <tr> <th>Setting Ranges</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>20 - 28A</td> <td>9BU3/7428</td> </tr> <tr> <td>28 - 42A</td> <td>9BU3/7442</td> </tr> <tr> <td>40 - 52A</td> <td>9BU3/7452</td> </tr> <tr> <td>52 - 65A</td> <td>9BU3/7465</td> </tr> <tr> <td>60 - 74A</td> <td>9BU3/7474</td> </tr> </tbody> </table>		TOR FOR K3-50 TO K3-74		Setting Ranges	Type	20 - 28A	9BU3/7428	28 - 42A	9BU3/7442	40 - 52A	9BU3/7452	52 - 65A	9BU3/7465	60 - 74A	9BU3/7474
TOR FOR K3-50 TO K3-74																		
Setting Ranges	Type																	
20 - 28A	9BU3/7428																	
28 - 42A	9BU3/7442																	
40 - 52A	9BU3/7452																	
52 - 65A	9BU3/7465																	
60 - 74A	9BU3/7474																	
Temperature compensation																		
Trip and alarm contacts																		

Ratings AC3 400V Motor 380-400V 660-690V AC1 690V at 40°C	90A 45kW 55kW 160A	115A 55kW 55kW 200A								
Auxiliary contacts NO NC 1 0 0 1 1 1 0 0	Type *230AC Coil									
	9BK390A00A230 SIS0010 - - 9BK390A00A230	9BK3115A00A230 SIS0010 - - 9BK3115A00A230								
Cable cross-section Solid mm ² Flexible mm ² Cables per clamp	120 + 95 95 + 70 1 + 1									
Auxiliary contact I _{th} 40°C A AC15 230V A 400V A	- - -									
Power consumption of coils Inrush VA hold VA Operation range of coils	280 5 0.85 - 1.1									
Mounting	2x DIN-rail or base									
Additional aux. contact blocks Front mounting Type contacts	 9BHN10 1NO For low level switching	 9BHN10 1NC For low level switching Maximum 7 HN..								
Additional aux. contact blocks Side mounting Type contacts	 9BHB11 1NO+1NC For low level switching	9BHB02 2NC For low level switching Maximum 2HB..								
Overload Relay (thermal) Single phase protection Temperature compensation Trip and alarm contacts	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: center;">TOR FOR K3-90 TO K3-115</th> </tr> <tr> <th style="text-align: center;">Setting Ranges</th> <th style="text-align: center;">Type</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">60 - 90A</td> <td style="text-align: center;">9BU8590</td> </tr> <tr> <td style="text-align: center;">80 - 120A</td> <td style="text-align: center;">9BU85120</td> </tr> </tbody> </table>		TOR FOR K3-90 TO K3-115		Setting Ranges	Type	60 - 90A	9BU8590	80 - 120A	9BU85120
TOR FOR K3-90 TO K3-115										
Setting Ranges	Type									
60 - 90A	9BU8590									
80 - 120A	9BU85120									

Standard Coil Voltage	
Code	Voltage
A024	24V AC 50Hz
A042	42V AC 50Hz
A110	110V 50Hz/120V 60Hz
A200	220V 60Hz
A230	230V 50Hz
A400	380-415V 50Hz/ 400-440V 60Hz
D024	24V DC
D048	48V DC
D110	110V DC
D220	220V DC

Other coil voltage, please consult us.

Ratings										
AC3	400V	Motor	210A	260A						
		380-400V	110kW	132kW						
		660-690V	160kW	210kW						
AC1	690V at 40°C		350A	450A						
				500A						
Auxiliary contacts			Type							
			*230AC Coil							
NO	NC									
1	0	-	-	-						
0	1	-	-	-						
1	1	9BK3210A00A230 SIS0011	9BK3260A00A230 SIS0011	9BK3316A00A230 SIS0011						
0	0	9BK3210A00A230	9BK3260A00A230	9BK3316A00A230						
Cable cross-section										
Solid		mm ²		busbar						
Flexible		mm ²		30 x 6						
Cables per clamp										
Auxiliary contact										
I _{th}	40°C	A	-	-						
AC15	230V	A	-	-						
	400V	A	-	-						
Power consumption of coils										
	Inrush VA		360							
	hold VA		5							
Operation range of coils			0.85 - 1.1							
Mounting				Base						
Additional aux. contact blocks										
Front mounting	Type									
contacts			9BHKT11 1NO + 1NC	9BHKT22 2NO + 2NC						
				Maximum 1 pc.						
Additional aux. contact blocks										
Side mounting	Type									
contacts			9BHKA11 1NO + 1NC							
				Maximum 2 pcs.						
Overload Relay (thermal)										
Single phase protection										
Temperature compensation										
Trip and alarm contacts										
			<table border="1"> <tr> <th colspan="2">TOR FOR K3-210 TO K3-316</th> </tr> <tr> <th>Setting Ranges</th> <th>Type</th> </tr> <tr> <td>144 - 320A</td> <td>9BU320320</td> </tr> </table>		TOR FOR K3-210 TO K3-316		Setting Ranges	Type	144 - 320A	9BU320320
TOR FOR K3-210 TO K3-316										
Setting Ranges	Type									
144 - 320A	9BU320320									

Standard Coil Voltage	
Code	Voltage
A024	24V AC 50Hz
A042	42V AC 50Hz
A110	110V 50Hz/120V 60Hz
A200	220V 60Hz
A230	230V 50Hz
A400	380-415V 50Hz/ 400-440V 60Hz
D024	24V DC
D048	48V DC
D110	110V DC
D220	220V DC

* Other coil voltage, please consult us.

4 Poles Contactor

- AC1 rated 25A to 500A
- AC3 rated 4KW to 160KW
- Compact and space saving design
- Suitable for applications such as switching heating circuits, as generator, as bypass or changeover contactor.



AC3 (Motor) 380-415V kW	AC1 (Resistive) 400V kW	AC1 690V Rated Current A	Auxiliary NO	Contact NC	Type
4	17.5	25	1	-	9B-K3-10A00-40 A230 SIS0010
17.5	22	32	1	-	9B-K3-18A00-40 A230 SIS0010
11	31	45	1	-	9B-K2-23A00-40 A230 SIS0010
15	34.5	50	1	-	9B-K2-30A00-40 A230 SIS0010
22	55	80	1	-	9B-K2-45A00-40 A230 SIS0010
30	69	100	1	-	9B-K2-60A00-40 A230 SIS0010
55	139	200	1	1	9B-K3-116A00-40 A230 SIS0011
75	159	230	1	1	9B-K3-151A00-40 A230 SIS0011
90	173	250	1	1	9B-K3-176A00-40 A230 SIS0011
110	242	350	1	1	9B-K3-210A00-40 A230 SIS0011
132	310	450	1	1	9B-K3-260A00-40 A230 SIS0011
160	346	500	1	1	9B-K3-316A00-40 A230 SIS0011

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Coil Voltage Coding	
Code	Voltage
A024	24V 50Hz
A042	42V 50Hz
A110	110V 50Hz/120V 60Hz
A230	220V-240V 50Hz
A400	380-415V 50Hz
D012	12 Vdc
D048	48 Vdc
D110	110 Vdc

-Other Coil Voltages, Please consult us.

-Latch and Mechanical Interlock option available as accessories

D.O.L Starters in Thermoplastic Enclosure

- Starter for motor control
- 0.25 to 15KW with 3 -phase thermal overload relay with 3 protected phases
- Enclosures IP 65 rated up to 7.5Kw
- Enclosures IP 55 rated 11 to 15Kw
- Include Start/Stop pushbutton
- Include Thermal Overload Relay

Motor 3- phase Power Rating 50/60Hz AC3 400V kW	Setting Range of Thermal Overload Relay A	Type *Coil =400Vac
0.25	0.8-1.2	9B-P1T09 A400 SIS0012
0.37	1.2-1.8	9B-P1T09 A400 SIS0018
0.55	1.2-1.8	9B-P1T09 A400 SIS0018
0.75	1.8-2.7	9B-P1T09 A400 SIS0027
1.1	2.7-4	9B-P1T09 A400 SIS0040
1.5	2.7-4	9B-P1T09 A400 SIS0040
2.2	4-6	9B-P1T09 A400 SIS0060
3.0	6-9	9B-P1T09 A400 SIS0090
3.7	8-11	9B-P1T09 A400 SIS0110
4.0	8-11	9B-P1T09 A400 SIS0110
5.5	10-14	9B-P1T16 A400 SIS0140
7.5	13-18	9B-P1T16 A400 SIS0180
11	17-23	9B-K2U23PT A400 SIS0230
15	22-30	9B-K2U30PT A400 SIS0300



Star-Delta Starters in Steel Enclosure

- Starter for motor control
- 5.5 to 55KW with 3 -phase thermal overload relay with 3 protected phases
- Include 1 green Start and 1 red Stop pushbutton
- Terminal blocks provided for easy wiring
- Include 1 Green Indicating Run Light and 1 Red Indicating Trip Light
- Star Delta Timer and Mechanical Interlock fitted
- Include Thermal Overload Relay
- Weather-proof enclosure

Motor 3- phase Power Rating 50/60Hz AC3 400V kW	Setting Range of Thermal Overload Relay A	Type *Coil =400Vac
5.5	6-9	9B-K3 Y18 BT A400 SIS0090
7.5	8-11	9B-K3 Y18 BT A400 SIS0110
11	10-14	9B-K3 Y18 BT A400 SIS0140
15	17-23	9B-K3 Y18 BT A400 SIS0230
18.5	17-23	9B-K3 Y18 BT A400 SIS0230
22	20-28	9B-K3 Y18 BT A400 SIS0280
30	28-42	9B-K3 Y18 BT A400 SIS0420
37	40-52	9B-K3 Y18 BT A400 SIS0520
45	40-52	9B-K3 Y18 BT A400 SIS0520
55	52-63	9B-K3 Y18 BT A400 SIS0630



Coil voltage 230Vac **Code A230**

* Other coil voltages please consult us

Capacitor Switching Contactors

for use with reactive or non-reactive capacitor banks

Rated Operational Power at 50/60Hz						Aux. Contacts			Type	Coil voltage ¹⁾ 220-240V 50Hz
Ambient Temperature						Built-in Add.				
50°C			60°C			NO	NC	pcs.		
380V	415V	660V	380V	415V	660V					
400V	440V	690V	400V	440V	690V					
kVAr	kVAr	kVAr	kVAr	kVAr	kVAr					
0-12,5	0-13	0-20	0-12,5	0-13	0-20	1	-	1 ²⁾	9BK3-18K10	A230
0-12,5	0-13	0-20	0-12,5	0-13	0-20	-	1	1 ²⁾	9BK3-18K01	
10-20	10,5-22	17-33	10-20	10,5-22	17-33	-	-	3 ³⁾	9BK3-24K00	
10-25	10,5-27	17-41	10-25	10,5-27	17-41				9BK3-32K00	
20-33,3	23-36	36-55	20-33,3	23-36	36-55				9BK3-50K00	
20-50	23-53	36-82	20-50	23-53	36-82				9BK3-62K00	
20-75 ⁴⁾	23-75 ⁴⁾	36-120 ⁴⁾	20-60	23-64	36-100				9BK3-74K00	
33-80	36-82	57-120	33-75	36-77	57-120			6 ⁵⁾	9BK3-90K00	A230
33-100 ⁶⁾	36-103 ⁶⁾	57-148 ⁶⁾	33-90 ⁶⁾	36-93 ⁶⁾	57-148 ⁶⁾				9BK3-115K00	



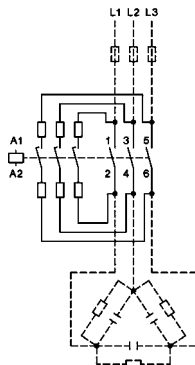
Specification: Contactors K3...K are suitable for switching low-inductive and low loss capacitors in capacitor banks (IEC70 and 831, VDE 0560) without and with reactors. Capacitor switching contactors are fitted with early make contacts and damping resistors, to reduce the value of make current $<70 \times I_e$.

Operating Conditions: Capacitor switching contactors are protected against contact welding for a prospective making current of $200 \times I_e$.

Technical Data acc. to IEC 947-4-1, IEC 947-5-1, EN 60947-4-1, EN 60947-5-1, VDE 0660

Type		ZBK3-18K	ZBK3-24K	ZBK3-32K	ZBK3-50K	ZBK3-62K	ZBK3-74K	ZBK3-90K	ZBK3-115K
Max. frequency of operations z	1/h	120	120	120	120	120	80	80	80
Contact life	non reactive capacitor banks	S x 103	250	150	150	150	120	120	120
	reactive capacitor banks	S x 103	400	300	300	300	200	200	200
Rated operational current I_e AC6b	at 50°C	A	0-18	14-28	14-36	30-48	30-72	30-108	50-115
	at 60°C	A	0-18	14-28	14-36	30-48	30-72	30-87	50-108
Rated operational current I_{th} AC1	at 50°C	A	32	45	60	100	110	120	155
	at 60°C	A	32	40	55	90	100	110	145
Overload factor acc. to EN 61921: 30% min.	at 50°C	%	78	60	67	108	53	11	35
	at 60°C	%	78	43	53	88	39	26	34
Fuses gL (gG)	from / to	A	35 / 63	50 / 80	63 / 100	80 / 160	125 / 160	160 / 200	160 / 200

Typical Circuit Diagram

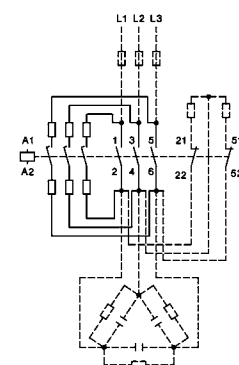


Wiring Diagram for Quick Discharge Resistors

Make sure that the current of the discharge resistors is not higher than the rated current (AC1) of the auxiliary contacts.

Mounting instructions:

In the area of capacitor switching contactors, difficulty inflammable and self-extinguishing materials shall be used only, because abnormal temperatures within the area of the resistor spirals cannot be excluded.



- 1) Other coil voltages, please contact us
- 2) 1 HN.. or HA.. snap-on
- 3) 2HB.. for side mounting and 1 HN.. or HA.. snap-on

- 4) Consider the max. thermal current of the contactor K3-74A: I_{th} 130A
- 5) 2 HB.. on the left or right side and 4 HN.. or HA.. snap-on
- 6) Consider the min. cross-section of conductor at max. load



Kraus & Naimer Pte. Ltd.

COMPANY REG NO: 196600227Z

SINGAPORE

Blk 115A Commonwealth Drive, #03-17/23
Singapore 149596
Tel : 65-64738166
Fax : 65-64738643
E-mail : sgp@krausnaimer.com