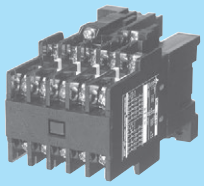
7.1 Model List

Appearance				 SR-K100
Frame				K100
No. of Contacts				10
Contact Arrangement				10a, 9a1b
				8a2b, 7a3b
				6a4b, 5a5b
Contact Rating (Note 2)	Conventional Free Air Thermal Current Ith [A]			16
	AC Rated Operational Current [A]	Category AC-15 (Coil Load)	AC110 V	6
			AC220 V	5
			AC440 V	3
			AC550 V	3
		Category AC-12 (Resistive Load)	AC110 V	16
			AC220 V	12
			AC440 V	5
			AC550 V	5
	DC Rated Operational Current [A]	Category DC-13 (Coil Load)	DC24 V	5
			DC48 V	3
			DC110 V	0.8 (2)
			DC220 V	0.2 (0.8)
		Category DC-12 (Resistive Load)	DC24 V	10
			DC48 V	8
			DC110 V	5 (8)
			DC220 V	1 (3)
Standard Type			SR-□	◎
DC Operated Type			SRD-□	◎
Mechanically Latched Type			SRL-□	◎
			SRLD-□	◎
With Large Rated Auxiliary Contacts			SR-□JH	○
			SRD-□JH	○
With Overlap Contacts			SR-□LC	○
			SRD-□LC	○
With Terminal Cover			SR-□CX	-
			SRD-□CX	-
Optional Units	Surge Absorber (Note 3) (Note 4)			○
	DC/AC Interface (Note 4)			○
	Live Part Protection Cover			-
IEC 35 mm Rail Mounting				◎
690 V Application				◎

Note 1. ◎ indicates standard, ○ indicates semi-standard and - indicates products outside production range.
Note 2. Refer to the individual ratings chart for the contact ratings of large rated auxiliary contacts and overlap contacts. The value in parentheses indicates that when switching a 2-pole load in series.
Note 3. For the mechanically latched type (SRL-K100, SRLD-K100), 1 piece can be mounted on each closing coil and tripping coil.
Note 4. The coil terminal of the contactor relay does not allow the attachment of both the surge absorber and DC/AC interface unit.

7.2 Selection and Application

Type Designations

SR — **K100** **JH** **9a1b**

Model Name	Model
SR	AC Operated
SRD	DC Operated
SRL	Mechanically Latched Type (AC Operated)
SRLD	Mechanically Latched Type (DC Operated)

Frame	No. of Poles
K100	10-Pole

Symbol	Specifications
None	Standard
JH	With Large Rated Auxiliary Contacts
LC	With Overlap Contacts

Contact Arrangement
Specify by the contact arrangement of each model name on pages 172, 175 and 177.

Function and Operation Classification by Application Type

Model Name	Operation Category	Application	Reference Page
SRD-K100	DC	General control circuit sequence relay for magnetic contactor command contacts etc.	Page 173
SRL-K100 SRLD-K100	AC DC	Same applications as SR and SRD types and also those requiring memory functionality	Page 174
SR-K100JH SRD-K100JH	AC DC	AC100 to 220 V, 3 to 10 A control of large breakers and solenoids	Page 176

Model Name	Operation Category	Application	Reference Page
SR-K100LC SRD-K100LC	AC DC	Applications that require the overlap switching of the make and break contacts	Page 177

Application by Contact Voltage, Current, Electrical Durability and Contact Reliability

For applications requiring greater contact reliability than indicated in Figs. 1 to 2, parallel contact connections (redundancy) are required. The reliability of the contacts decreases for contacts connected in series.

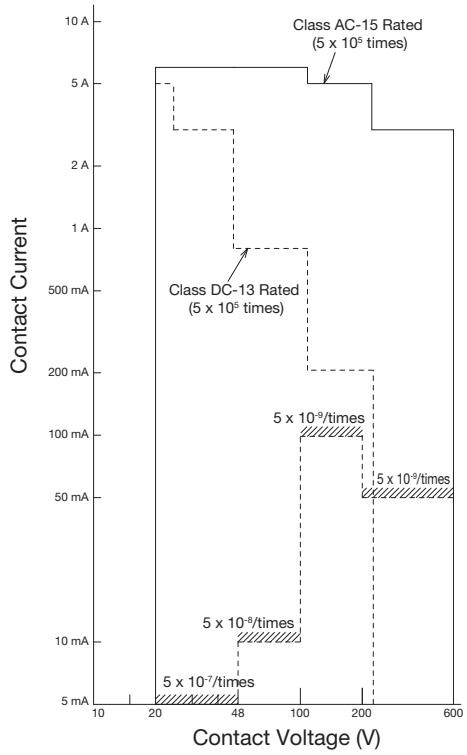


Fig. 1. SR/SRD/SRL(D)-K100

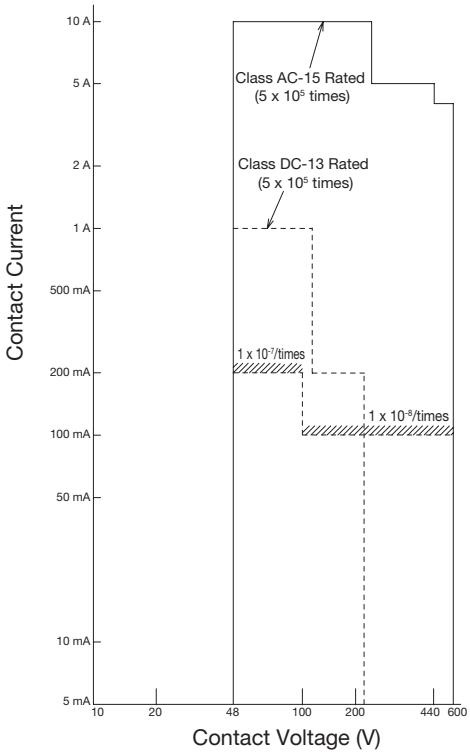


Fig. 2. SR/SRD-K□JH (Large Capacity)

Note 1. The contact reliability indicates a 60% confidence rate for a λ60 failure rate (no. of faults/times switching, no. of contacts)

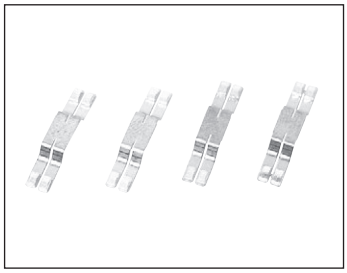
Related Reference Page

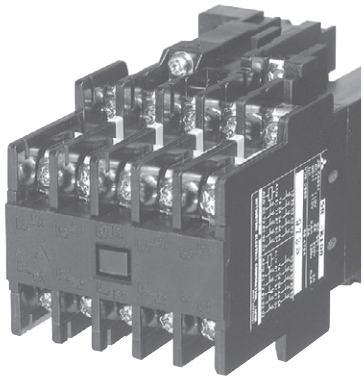
Item	Reference Page	Remarks
· Working Environment	Page 64	—
· Mounting	Page 64	—
· Wiring	Page 68	—
· Control Circuit Power Supply Voltage Fluctuation Range	Page 69	—
· Applicable Wire Size and Terminal Screw Tightening Torque	Page 67	—

7.3 SR-K100 Standard Type (AC Operated) Contactor Relays

Features

- **Rail mounting is fully adopted**
  IEC 35 mm rail mounting mechanism that dramatically reduces assembly time has been fully adopted.
- **High contact reliability**
  The full adoption of twin contacts improves the contact reliability.





SR-K100

- **Easy wiring**
  Uses self-lifting terminal screws that can reliably tighten wires, ring crimp lugs and square-tip crimp lugs.
- **Clearly visible coil rating**
- **The make and break contacts can be used in different voltages**
  Strengthened insulation between poles and between upper and lower contacts of the same pole.

Ratings (SR, SRD-K100/SRL, SRLD-K100)

Frame				K100 Note 7
Contact Arrangement				10a, 9a1b (9a, 8a1b)
				8a2b, 7a3b (7a2b, 6a3b)
				6a4b, 5a5b (5a4b, 4a5b)
Contact Rating (Note 2)	Rated Insulation Voltage [V]			660
	Conventional Free Air Thermal Current Ith [A]			16
	AC Rated Operational Current [A]	Category AC-15 (Coil Load)	AC110 V	6
			AC220 V	5
			AC440 V	3
			AC550 V	3
		Category AC-12 (Resistive Load)	AC110 V	16
			AC220 V	12
			AC440 V	5
			AC550 V	5
	DC Rated Operational Current [A]	Category DC-13 (Coil Load)	DC24 V	5
			DC48 V	3
			DC110 V	0.8 (2)
			DC220 V	0.2 (0.8)
		Category DC-12 (Resistive Load)	DC24 V	10
			DC48 V	8
			DC110 V	5 (8)
			DC220 V	1 (3)

Note 1. JIS C8201-5-1 classifications are class AC-15 applicable to AC solenoid and class DC-13 applicable to DC solenoid switching. JIS C8201-5-1 classifications are class AC-12 applicable to AC resistive load switching and class DC-12 applicable to DC resistive load switching.
Note 2. The value in parentheses for the DC rated operational current indicates the rated operating current when switching a 2-pole load in series.
Note 3. The making and breaking capacities are 10 times with AC-15 and 1.1 times with DC-13.
Note 4. Electrical durability of 500,000 operations. (Class AC-15 at 220 V 3 A is 1 million operations, or 5 million operations at 1 A.)
Note 5. The minimum operating voltage and current differ depending on the allowable fault rate. Refer to Figure 1 and 2 on page 169 for details.
Note 6. The withstand voltage is AC2500 V for 1 minute.
Note 7. The contact arrangement for latched SRL-K100 and SRLD-K100 types is shown in parentheses.

Performance (SR, SRD-K100/SRL, SRLD-K100)

Frame	Making and Breaking Capacities				Switching Frequency	Switching Durability	
	Category	Rated Operating Voltage	Making Current [A]	Breaking Current [A]		Electrical	Mechanical
K100	AC-15	AC110 V AC220 V AC550 V	66 55 33	66 55 33	1800 Times/Hour [Standard Type, DC Operated Type] 1200 Times/Hour [Mechanically Latched Type]	Class AC-15 (AC Coil Load) 220 V 5 A, 0.5 mil. times 220 V 3 A, 1 mil. times 440 V 3 A, 0.5 mil. times Class DC-13 (DC Coil Load) 110 V 0.8 A, 0.5 mil. times 220 V 0.2 A, 0.5 mil. times	10 mil. times [Standard Type, DC Operated Type] 1 mil. times [Mechanically Latched Type]
	DC-13	DC24 V DC48 V DC110 V DC220 V	20 10 2 (5) 0.4 (1.5)	20 10 2 (5) 0.4 (1.5)			

Note 1. The DC values in parentheses are the making and breaking capacities when using 2-poles in series.
Note 2. Making current capacity tests are performed 100 times, while breaking current capacity tests are performed 25 times.

Properties (SR, SR-K100JH)

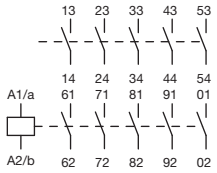
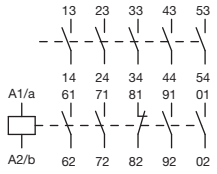
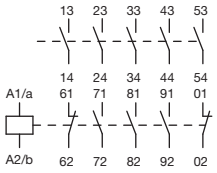
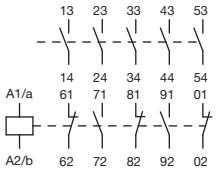
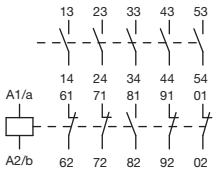
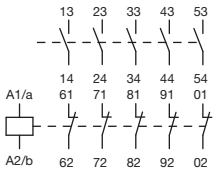
Frame	Coil Input [VA]		Coil Power Consumption [W]	Contact Arrangement	Operating Voltage [V]		Operating Time [ms]			
	Inrush	Normal			Operation	Open	Coil ON → Make Contact ON	Coil ON → Break Contact OFF	Coil OFF → Make Contact OFF	Coil OFF → Break Contact ON
K100	50	10	3.0	10a	125 to 156	85 to 120	9 to 17	——	4 to 13	——
				5a5b	120 to 153	87 to 123	9 to 17	7 to 14	4 to 12	5 to 14

Note 1. The above indicates rough property indices for AC200V coils.
Note 2. The drive voltage is that at a 20°C cold state at 60 Hz. Voltages for coils other than AC200V can be calculated proportionately.
Note 3. The input and power consumption are average values. These are almost the same for coils other than AC200V.
Note 4. The operating time is the value when applying 200 V at 60 Hz. These are almost the same for coils other than AC200V.
Make contacts and break contacts cannot be overlapped in time.

Related Reference Page

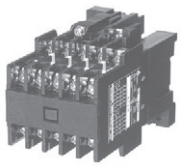
Item	Reference Page	Remarks
· Operation Coil	Page 41	—
· How to Order	Page 178	—
· Combining with Optional Units	Page 184	—

Contact Arrangement/Contact Placement

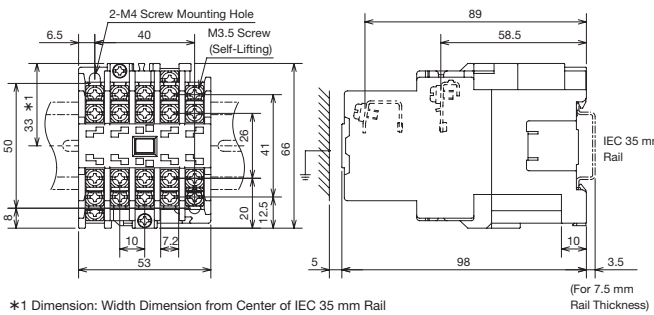
Frame	K100
Contact Arrangement	10a, 9a1b
	8a2b, 7a3b
	6a4b, 5a5b
Contact Placement	 10a
	 9a1b
	 8a2b
	 7a3b
	 6a4b
	 5a5b

Outline Drawings

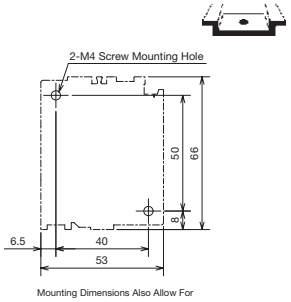
SR-K100



0.37 kg



∗1 Dimension: Width Dimension from Center of IEC 35 mm Rail



Mounting Dimensions Also Allow For
40 x 52, 34 x 52 Mounting

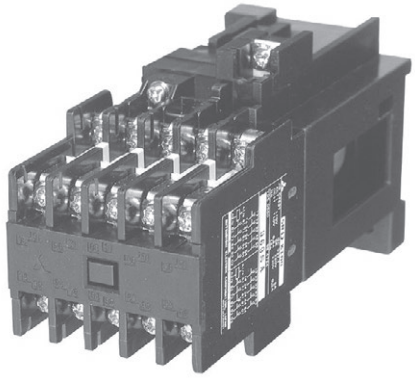
Model Name	Model Number
SR-K100	SR08 □

mark indicates that it can be mounted on IEC 35 mm rails.

7.4 SRD-K100 DC Operated Contactor Relays

Features

- IEC 35 mm rail mounting is adopted
- High contact reliability
  The adoption of twin contacts improves the contact reliability.
- Excellent operational reliability and high frequency switching capacity
  Uses a DC full-applied voltage type solenoid.



SRD-K100

- No buzzing sound
- No coil inrush current
  The coil doesn't use saving resistance so there is no inrush current.

Operation Coil Properties (SRD, SRD-K100JH, SRD-K100LC)

Coil Designation	Coil Current 20°C [mA]	Coil Resistance 20°C [Ω]	Coil Designation	Coil Current 20°C [mA]	Coil Resistance 20°C [Ω]
	SRD-K	SRD-K		SRD-K	SRD-K
DC100V	67	1485	DC24V	276	87
DC110V	65	1692	DC48V	138	347
DC200V	34	5855	DC125V	56	2220
DC220V	31	7115			

Note. The coil current and coil resistance are the average values in the cold state.

Properties (SRD, SRD-K100JH)

Frame	Coil		Operating Voltage [V]		Operating Time [ms]			
	Power Consumption [W]	Time Constant [ms]	Operation	Open	Coil ON → Make Contact ON	Coil ON → Break Contact OFF	Coil OFF → Make Contact OFF	Coil OFF → Break Contact ON
K100	7	40	52 to 70	12 to 30	40 to 63	37 to 53	7 to 15	11 to 20

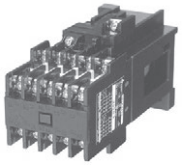
Note 1. The above indicates rough property indices for DC100V coils.
Note 2. The drive voltage is that at a 40°C cold state. Voltages for coils other than DC100V can be calculated proportionately.
Note 3. The power consumption and coil time constant are average values. These are almost the same for coils other than DC100V.
Note 4. The operating time is the value when applying DC100V (with 5% or less ripple). These are almost the same for coils other than DC100V.
Make contacts and break contacts cannot be overlapped in time.

Related Reference Page

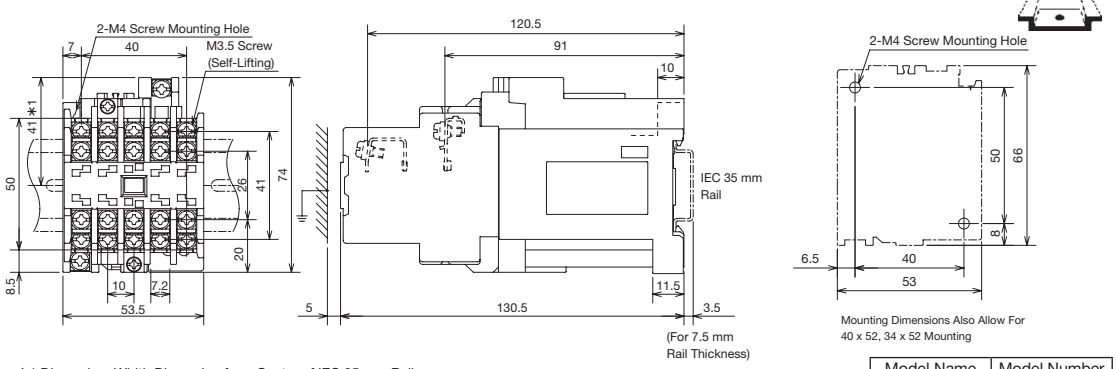
Item	Reference Page	Remarks
· Operation Coil	Page 42	—
· Rating	Pages 168, 169	—
· Performance	Page 171	—
· Contact Arrangement/Contact Placement	Page 172	—
· How to Order	Page 178	—
· Combining with Optional Units	Page 184	—

Outline Drawings

SRD-K100



0.67 kg



∗1 Dimension: Width Dimension from Center of IEC 35 mm Rail

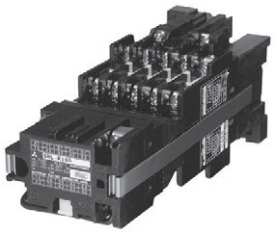
Model Name	Model Number
SRD-K100	SR13 □

7.5 SRL-K100, SRLD-K100 Mechanically Latched Contactor Relays

SRL is SR with a mechanical latch mechanism attached at the top. Simply energizing the closing coil for approximately 0.5 seconds causes mechanical retention in the closed state, tripping only when the tripping coil is energized. Closing coils are available as SRL AC operated types or SRLD DC operated types. These are sometimes called keep relays or momentary energizing relays.

Features

- Can be used as a memory relay
  The mechanical retention prevents opening due to power failures or voltage drops.
- Reduced coil power consumption
  The constant power consumption of the solenoid of the operation coil can be reduced.
- Allows manual closing
- Allows manual tripping



SRL-K100

- No buzzing sound
- Stable operation
  The self-demagnetizing break contact of the closing coil has been built into the latch mechanism.
- High contact reliability
  The adoption of twin contacts improves the contact reliability.
- IEC 35 mm rail mounting is fully adopted

Performance

Closing Coil Operation Category	Model Name	Tripping Coil Self-Demagnetizing	Closing Coil Self-Demagnetizing	Contact Arrangement (Valid)	Switching Frequency [Times/Hour]	Switching Durability (Ten Thousand Times)	
						Electrical	Mechanical
AC Operated	SRL-K100	Incl.	Incl.	9a, 8a1b, 7a2b, 6a3b, 5a4b, 4a5b	1200	50	100
DC Operated	SRLD-K100						

Properties

Frame		Operation Coil Input [VA]	Contact Arrangement	Operating Voltage [V]		Operating Time [ms]			
				Closing	Tripping	Closing Coil ON → Make Contact ON	Closing Coil ON → Break Contact OFF	Tripping Coil ON → Make Contact OFF	Tripping Coil ON → Break Contact ON
AC Operated	SRL-K100	Closing 100 Tripping 90	8a1b	115 to 156	68 to 110	8 to 16	6 to 15	10 to 18	11 to 20
			4a5b	115 to 155	70 to 115	8 to 16	6 to 15	10 to 18	11 to 20
DC Operated	SRLD-K100	Closing 90 Tripping 100	8a1b	50 to 80	35 to 75	10 to 18	10 to 19	10 to 18	10 to 19
			4a5b	45 to 80	35 to 80	10 to 20	10 to 19	10 to 18	10 to 19

Operation Coil Rating (SRL, SRLD-K100)

For AC			
Coil Designation	Rated Voltage [V]		Coil Indicator
	50 Hz	60 Hz	
AC12V	12	12	Rated Voltage/ Frequency
AC24V	24	24	
AC48V	48 to 50	48 to 50	
AC100V	100	100 to 110	
AC120V	110 to 120	115 to 120	
AC200V	200	200 to 220	
AC220V	208 to 220	220	
AC260V	240 to 260	260 to 280	
AC400V	380 to 415	400 to 440	
AC440V	415 to 440	460 to 480	
AC500V	500	500 to 550	

For DC		
Coil Designation	Rated Voltage	Coil Indicator
DC12V	DC12 V	Rated Voltage
DC24V	DC24 V	
DC48V	DC48 V	
DC100V	DC100 V to 110 V	
DC125V	DC120 V to 125 V	
DC200V	DC200 V to 220 V	

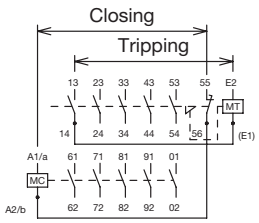
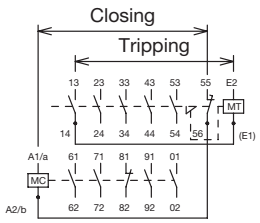
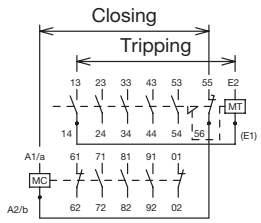
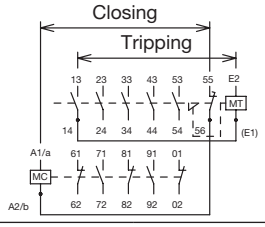
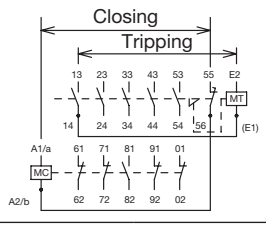
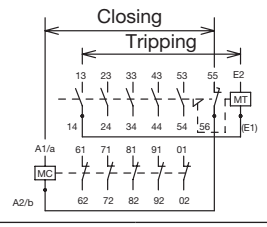
Note 1. DC coils have no polarity.

The designation is a symbol to be specified when ordering.

Related Reference Page

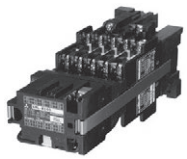
Item	Reference Page	Remarks
· Rating	Pages 168, 169	Same as SR- □ .
· Handling	Page 161	Same as SRL, SRLD- □ .
· How to Order	Page 178	–
· Combining with Optional Units	Page 184	–

Contact Arrangement/Contact Placement

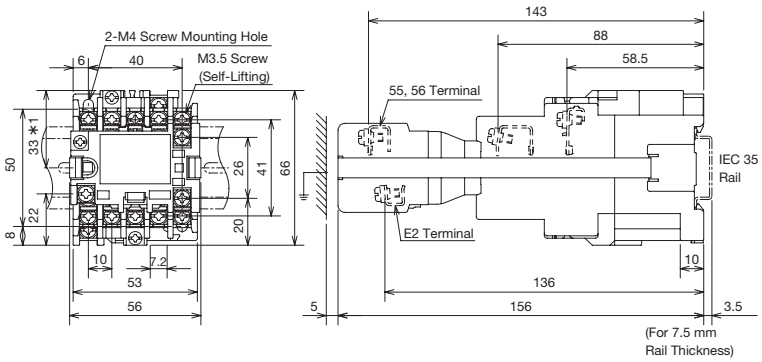
SRL-K100	SRLD-K100	SRL-K100	SRLD-K100	SRL-K100	SRLD-K100
9a		8a1b		7a2b	
					
SRL-K100	SRLD-K100	SRL-K100	SRLD-K100	SRL-K100	SRLD-K100
6a3b		5a4b		4a5b	
					

Outline Drawings

SRL-K100
SRLD-K100



0.53 kg



∗1 Dimension: Width Dimension from Center of IEC 35 mm Rail

Model Name
SRL-K100
SRLD-K100

7

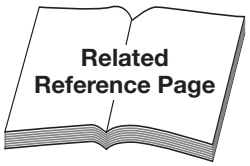
7.6 SR/SRD-K100JH Contactor Relays with Large Rated Auxiliary Contacts

SR-□JH type uses S-N11, S-N12 magnetic contactor contacts to be suitable for applications requiring use of comparatively large currents and great electrical durability.

Rating

Model Name			SR-K100JH SRD-K100JH
Contact Arrangement			10a, 9a1b
			8a2b, 7a3b
			6a4b, 5a5b
Rated Insulation Voltage [V]			660
Contact Rating	Conventional Free Air Thermal Current Ith [A]		20
	AC Rated Operational Current [A]	Category AC-15 (Coil Load)	AC110 V: 10 (6) AC220 V: 10 (5) AC440 V: 5 (3) AC550 V: 4 (3)
		Category AC-12 (Resistive Load)	AC110 V: 20 AC220 V: 16 AC440 V: 10 AC550 V: 10
	DC Rated Operational Current [A]	Category DC-13 (Coil Load)	DC24 V: 5 DC48 V: 3 DC110 V: 0.8 DC220 V: 0.2
		Category DC-12 (Resistive Load)	DC24 V: 10 DC48 V: 8 DC110 V: 5 DC220 V: 1

Note 1. Electrical durability of 500,000 operations.
Note 2. The value in parentheses for the AC rated operational current indicates the rated operating current when using different voltages.
Note 3. The minimum operating voltage and current differ depending on the allowable fault rate. Select from Figure 2 on page 169.



Item	Reference Page	Remarks
· Operation Coil	Pages 41, 42	Same as SR-□ and SRD-□.
· Properties	Pages 171, 173	Same as SR-□ and SRD-□.
· Contact Arrangement/Contact Placement	Page 172	Same as SR-□ and SRD-□.
· Outline Drawings	Pages 172, 173	Same as SR-□ and SRD-□.
· How to Order	Page 178	—
· Combining with Optional Units	Page 184	—

7.7 SR/SRD-K100LC Contactor Relays with Overlap Contacts

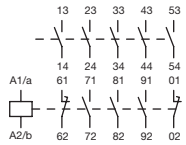
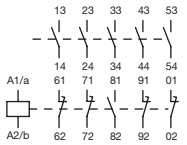
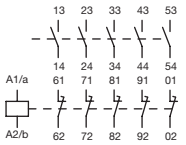
SR-□LC types with overlap contacts overlap operation by turning the break contact OFF after the make contact turns ON.

Rating (SR, SRD)

Model Name				K100LC
Contact Arrangement				8a2b
				6a4b, 5a5b
Contact Rating	Rated Insulation Voltage [V]			600
	Conventional Free Air Thermal Current Ith [A]			16
	AC Rated Operational Current [A]	Category AC-15 (Coil Load)	AC110 V	6
			AC220 V	5
			AC440 V	3
			AC550 V	3
		Category AC-12 (Resistive Load)	AC110 V	16
			AC220 V	12
			AC440 V	5
			AC550 V	5
	DC Rated Operational Current [A]	Category DC-13 (Coil Load)	DC24 V	3
			DC48 V	2
			DC110 V	0.5
			DC220 V	0.1
		Category DC-12 (Resistive Load)	DC24 V	8
			DC48 V	5
			DC110 V	3
			DC220 V	0.5

Note 1. The AC rated operational current for the make contact is shown in the table above.
The break contact rated making current is 20 A and the rated breaking current AC 24 to 550 V 3 A. (However, COSϕ = 0.3 to 1.0)
Note 2. The contacts may wear out through current switching and may not overlap. Take sufficient precautions.

Contact Arrangement/Contact Placement

SR-K100LC SRD-K100LC		
8a2b	6a4b	5a5b
		

Related Reference Page

Item	Reference Page	Remarks
· Operation Coil	Pages 41, 42	Same as SR-□ and SRD-□.
· Properties	Pages 171, 173	Same as SR-□ and SRD-□. However, break contact operating times differ.
· Outline Drawings	Pages 172, 173	Same as SR-□ and SRD-□.
· How to Order	Page 178	—
· Combining with Optional Units	Page 184	Auxiliary contact units and front clip-on timer units cannot be combined together.

7.8 How to Order

Follow the steps below when ordering. (Enter a space in ▲ .)

SR, SRD-K Type Contactor Relays

Model Name	Operation Coil and Designation	Contact Arrangement
SR-K100 SRD-K100	▲ AC200V ▲ DC100V	▲ 5A1B ▲ 5A5B
Specify from pages 168 and 169.	Select the operation coil designation (or coil voltage and frequency) from the ratings on pages 41 and 42.	Specify from the contact arrangement on page 172.

SRL, SRLD-K Type Mechanically Latched Contactor Relays

Model Name	Closing Control Coil	Tripping Control Coil	Contact Arrangement
SRL-K100 SRLD-K100	▲ MC-AC200V ▲ MC-DC100V	▲ MT-DC100V ▲ MT-DC100V	▲ 5A4B ▲ 5A4B
Specify from pages 168 and 169.	Specify the closing (MC) and tripping (MT) operation coil designation (or coil voltage and frequency) from the ratings on page 174.		Specify a (valid) contact arrangement from page 175.

3. Contactor Relays

(1) Mounting Compatibility of SR(RM) Type and current models (SR-K/SR-T)

Old Model	Compatibility	Current Model
SR-40(RM)	○	SR-T5
SR-50(RM)	x	SR-T5
SR-80(RM)	○	SR-T9
SR-63, 60(RM)	x	SR-T9
SR-100	○	SR-K100

(2) Mounting Compatibility of SR-K Type and current models (SR-K/SR-T)

Old Model	Compatibility	Current Model
SR-K4	○	SR-T5
SR-K5	x	SR-T5
SR-K8	○	SR-T9
SR-K63, K6	x	SR-T9
SR-K10	○	SR-K100

(3) Mounting Compatibility of SRD Type and current models (SRD-K/SRD-T)

Old Model	Compatibility	Current Model
SRD-4, SRD-4 □□	x	SRD-T5
SRD-5, SRD-5 □□	x	SRD-T5
SRD-8, SRD-8 □□	x	SRD-T9
SRD-10	○	SRD-K100

(4) Mounting Compatibility of SRD Type and current models (SRD-K/SRD-T)

Old Model	Compatibility	Current Model
SRD-40	○	SRD-T5
SRD-50	x	SRD-T5
SRD-80	○	SRD-T9
SRD-100	○	SRD-K100

(5) Mounting Compatibility of SRD-K Type and current models (SRD-T)

Old Model	Compatibility	Current Model
SRD-K4	○	SRD-T5
SRD-K5	x	SRD-T5
SRD-K8	○	SRD-T9

(6) Mounting Compatibility of SRL(D) Type and current models (SRL(D)-K/SRL(D)-T)

Old Model	Compatibility	Current Model
SRL(D)-4	x	SRL(D)-T5
SRL(D)-5	— (○)	—(SRL(D)-K100)
SRL(D)-10	○	SRL (D)-K100

(7) Mounting Compatibility of SRL(D) Type and current models (SRL(D)-K/SRL(D)-N/SRL-T)

Old Model	Compatibility	Current Model
SRL(D)-40(SE)	○	SRL(D)-T5
SRL(D)-50(SE)	— (○)	—(SRL(D)-K100)
SRL(D)-100(SE)/ SRL(D)-101	○	SRL (D)-K100

(8) Mounting Compatibility of SRL(D)-K Type and current models (SRL(D)-K/SRL(D)-N/SRL-T)

Old Model	Compatibility	Current Model
SRL(D)-K4	○	SRL(D)-T5
SRL(D)-K10	○	SRL (D)-K100

(9) Mounting Compatibility of SRL(D)-N and SRL(D)-T Types

Old Model	Compatibility	Current Model
SRL(D)-N4	○	SRL(D)-T5

(10) Mounting Compatibility of SRT(D)- and (SRT(D)-N) Types

Old Model	Compatibility	Current Model
SRT(D)-N/F	○	SRT(D)-NN/NF
SRT(D)-AN/AF	○	SRT(D)-NN/NF
SRT(D)-KN/KF	○	SRT(D)-NN/NF