4. RELAYS

4.1 Contactor Relays

SR-N4

The MITSUBISHI series SR-N contactor relays are specially designed for use in low voltage control circuit applications. Series SR-N have many superior features.

Features

- High reliability: By adopting bifurcated moving contacts and by improving the shape of the contacts, contact performance has been made more reliable than ever.
- Long life
- Can be mounted on 35mm rail
- Dust-proof construction
- Easily visible coil ratings
- Easy wiring (self-rising terminal screws)
- Various accessories common with the series S-N contactors
(Head-and side clip-on type additional aux. contact blocks, surge absorbers, safety covers)
- Finger protected types are available (DIN 57106/VDE 0106 Part 100)

Type Designation

- **Standard types**

SR – N4 LC ∗ AC200V ∗ 2A2B

CONTROL TYPE	
SR	AC operated
SRD	DC operated
SRL[1]	AC & Latched
SRLD[1]	DC & Latched

TYPE	
∗	Standard type
JH	Big capacity type
LC	With overlap contact type
CX[3]	With finger protection cover

COIL VOLTAGE[2]
See Table 4.1.1(2)

CONTACT ARRANGEMENT (CODE)
See Table 4.1.1(1)

Notes: 1. For latched type relays, JH and LC types cannot be available.
2. When ordering the latched type relays, please specify the closing coil and tripping coil voltage.
ex: SRL-N4 ∗ MC-AC200V ∗ MT-AC100V ∗ 4A
closing coil tripping coil
3. Only suffix "CX" is admitted to make any combination with other tabulated suffixes.

Note: Mark ∗ indicates a blank space.

4.1.1 Specifications

Rating and characteristics

Table 4.1.1 (1)

Type			SR- SRD-	N4 (CX)	N4JH (CX)	N4LC (CX)
Available contact arrangements (code)				4NO (4A) 3NO+1NC (3A1B) 2NO+2NC (2A2B)	4NO (4A) 2NO+2NC (2A2B)	4NO (4A) 2NO+2NC (2A2B)
Rated insulation voltage			V	660		
Conventional free air thermal current		Ith	A	16	20	16
Rated operating current	Category AC-15 (coil load)	110VAC 230VAC 440VAC 550VAC	A A A A	6 5 3 3	10 10 5 4	6 (3)[2] 5 (3)[2] 3 (3)[2] 3 (3)[2]
	Category AC-12 (resistive load)	110VAC 230VAC 440VAC 550VAC	A A A A	16 12 5 5	20 16 10 10	16 12 5 5
	Category DC-13 (large coil load)	24VDC 48VDC 110VDC 220VDC	A A A A	5 3 0.8(2)[1] 0.2(0.8)[1]		3 2 0.5 0.1
	Category DC-14	24VDC 48VDC 110VDC 220VDC	A A A A	8 3 2(4)[1] 0.4(1)[1]		5 2 1 0.2
	Category DC-12 (resistive load)	24VDC 48VDC 110VDC 220VDC	A A A A	10 8 5(8)[1] 1(3)[1]		8 5 3 0.5
Mechanical life Electrical life			Operations Operations	10 million (latched type 1 million) 0.5 million		
Permissible ambient temperature/humidity			°C/%RH	-25 to +55/45 to 85		
Coil consumption	Ac-operated	Inrush Sealed Watts	VA VA W	60 10 3		
	DC-operated	Watts	W	7		
Coil voltage tolerance			times	0.85 to 1.1 (rated coil voltage)		
Operating time (average)		Make Break	ms ms	15 (AC operated) 10 (AC operated)		50 (DC operated) 10 (DC operated)
Switching frequency			operations /hour	1,800		
Vibration resistance Shock resistance	10-55Hz 10 msec. half sine wave		m/s² m/s²	19.6 49		
Conductor size			mm²	1.0 to 2.5		

Notes: 1. Parenthesized rated operating current is for switching the load in 2-pole series connection.
2. Parenthesized rated operating current is for switching of NC contact.

Coil voltage

Table 4.1.1 (2)

Coil designation	Rated voltage (AC)		Coil designation	Rated voltage (AC)		Coil designation	Rated voltage (DC)
	50Hz	60Hz		50Hz	60Hz		
AC12V	12V	12V	AC220V	208-220V	220V	DC24V	24VDC
AC24V	24V	24V	AC230V	220-240V	230-240V	DC48V	48VDC
AC48V	48-50V	48-50V	AC260V	240-260V	260-280V	DC100V	100VDC
AC100V	100V	100-110V	AC380V	346-380V	380V	DC110V	110VDC
AC120V	110-120V	115-120V	AC400V	380-415V	400-440V	DC125V	120-125VDC
AC127V	125-127V	127V	AC440V	415-440V	460-480V	DC200V	200VDC
AC200V	200V	200-220V	AC500V	500V	500-550V	DC220V	220VDC

Note: AC operated coils are the same as those of S-N10 etc., and DC operated coils are the same as those of SD-N11 etc.

4.1.2 Auxiliary Contact Blocks

Type Designation

● Front clip-on types

UN-AX [4] [CX] * [2A2B]

POLES	
4	4 pole
2	2 pole

FINGER PROTECTION	
None	Not provided
CX	Provided

CONTACT ARRANGEMENTS
See Table 4.1.2(1)

[FOR LOW SIGNAL LEVEL] UN-LL22 [CX]

FINGER PROTECTION	
None	Not provided
CX	Provided

● Side clip-on types

UN-AX11 [CX]

FINGER PROTECTION	
None	Not provided
CX	Provided

*Note: Mark * indicates a blank space.*

Ratings and characteristics

Table 4.1.2 (1)

Type			UN-	AX2 (CX)	AX4 (CX)	AX11(CX)	LL22 (CX)	
Applicable contact arrangements				2NO 1NO+1NC 2NC	4NO 3NO+1NC 2NO+2NC	INO+INC	1NO+1NC [Standard]	1NO+1NC[1] [Low level]
Rated insulation voltage			V	690				250
Conventional free air thermal current			Ith A	16				1
Rated operating current	Category AC-15 (coil load)	110VAC 220VAC 440VAC	A A A	6 5 3				240VAC 20mA (COSφ≧0.95) 48VDC 100mA (L/R≦1msec) Minimum operating current 5VDC 5mA
	Category DC-13 (large coil load)	48VDC 110VDC 220VDC	A A A	3 0.8 0.2				
Mechanical life Electrical life			operations operations	10 million 0.5 million			2.5 million 0.5 million	
Permissible ambient temperature/humidity			°C/%RH	–25 to +55/45 to 85				
Switching frequency			operations /hour	1,800				
Conductor size			mm²	1.0 to 2.5				

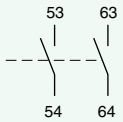
Note: 1. Contact reliability may be decreased if it is operated more than 1 million operations

Selection guide & contact arrangements

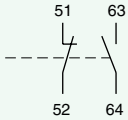
Table 4.1.2 (2)

Front clip-on types

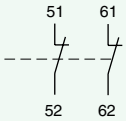
UN-AX2 2A — 2NO



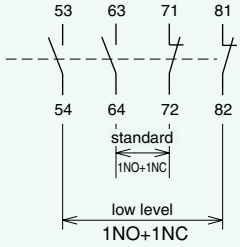
UN-AX2 1A1B — 1NO+1NC



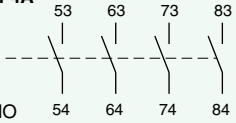
UN-AX2 2B — 2NC



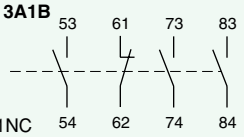
UN-LL22



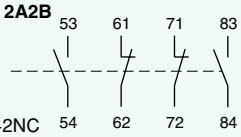
UN-AX4 4A — 4NO



UN-AX4 3A1B — 3NO+1NC

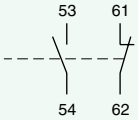


UN-AX4 2A2B — 2NO+2NC

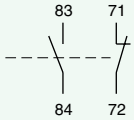


Side clip-on types

UN-AX11 — 1NO+INC



When mount on left side



When mount on right side

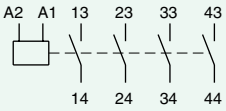
Note: Front clip-on types and side clip-on contact block should not be mounted both.

4.1.3 Contact Arrangements of Contactor Relay

Table 4.1.3

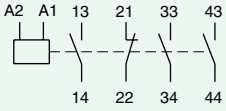
With standard contacts

4NO



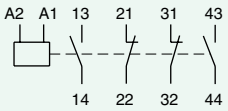
SR-N4(CX)AC·····V 4A
SRD-N4(CX)DC·····V 4A

3NO + 1NC



SR-N4(CX)AC·····V 3A1B
SRD-N4(CX)DC·····V 3A1B

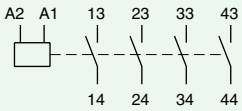
2NO + 2NC



SR-N4(CX)AC·····V 2A2B
SRD-N4(CX)DC·····V 2A2B

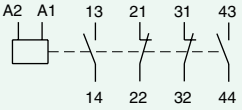
With big capacity contacts

4NO



SR-N4JH(CX)AC·····V 4A
SRD-N4JH(CX)DC·····V 4A

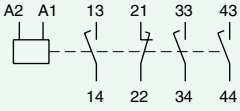
2NO + 2NC



SR-N4JH(CX)AC·····V 2A2B
SRD-N4JH(CX)DC·····V 2A2B

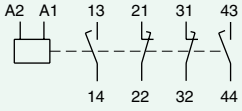
With late break contacts

3NO + 1NC (late break)



SR-N4LC(CX)AC·····V 3A1B
SRD-N4LC(CX)DC·····V 3A1B

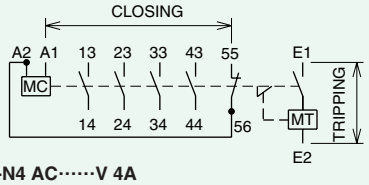
2NO + 2NC (late break)



SR-N4LC(CX)AC·····V 2A2B
SRD-N4LC(CX)DC·····V 2A2B

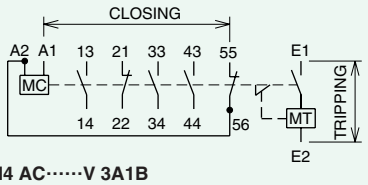
With mechanical latching

4NO



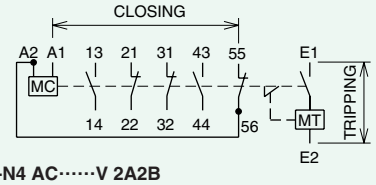
SRL-N4 AC·····V 4A
SRLD-N4 DC·····V 4A

3NO + 1NC



SRL-N4 AC·····V 3A1B
SRLD-N4 DC·····V 3A1B

2NO + 2NC



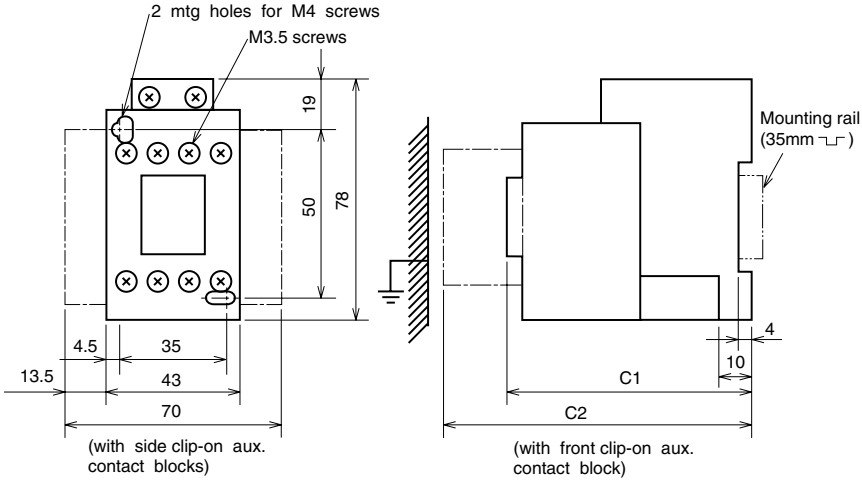
SRL-N4 AC·····V 2A2B
SRLD-N4 DC·····V 2A2B

4.1.4 Spare Coils & Accessories

Spare coils and accessories are common with the series S-N contactors.

- Spare coils ..... See Table 1.8.1(except for Type SRL(D)latched relays)
- Surge absorbers(suppressors) ..... See Table 1.8.6

4.1.5 Outline Dimensions



● **Key to Dimensions**

Model	C1	C2	Mass (kg)
SR-N4(CX)	78	106	0.3
SRD-N4(CX)	110	138	0.62
SRL-N4(CX) SRLD-N4(CX)	134	–	0.45

Note: Front clip-on and side clip-on contact block should not be mounted both.