

PART5

RELAY



KH-101 Series

KH-102 Series

KH-103 Series

KH-103-1C (SPDT)

KH-103-2C (DPDT)

KH-103-3C (3PDT)

KH-103-4C (4PDT)

KH-103-H2C

RELAYS



Quick Selection Guide

Model	Contact form	For Socket (except KH-101)		For PCB		Compatible Sockets	
		W/O LED	W/ LED	W/O LED	W/ LED	For Din Rail	For PCB
KH-101	DPST NO	KH-101-2A	-	-	-	-	-
	DPDT	KH-101-2C	-	-	-	-	-
KH-102	DPDT	KH-102-2C	-	-	-	KH-RS-R8	-
	3PDT	KH-102-3C	-	-	-	KH-RS-R11	-
KH-103	SPDT	KH-103-1C	KH-103-1CL	KH-103-1CP	KH-103-1CPL	-	-
	DPDT	KH-103-2C	KH-103-2CL	KH-103-2CP	KH-103-2CPL	KH-RS-14M-8 KH-RS-14N-8	KH-RS-PC14-8 KH-RS-P14-8*
	DPDT	KH-103-H2C	KH-103-H2CL	-	-	KH-RS-H2C	-
	3PDT	KH-103-3C	KH-103-3CL	KH-103-3CP	KH-103-3CPL	-	-
	4PDT	KH-103-4C	KH-103-4CL	KH-103-4CP	KH-103-4CPL	KH-RS-14M KH-RS-14N	KH-RS-PC14 KH-RS-P14*

KH-RS-P14 and KH-RS-P14-8 are for wiring.

Note: When ordering, add the rated coil voltage behind the model number.

Example: KH-103-4CL-12VAC

30A POWER RELAYS KH-101 SERIES



Quick Selection Guide

KH-101-2A	2a
KH-101-2C	2a+2b

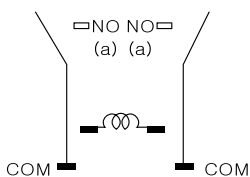
Coil Ratings

Rated Voltage	Rated Current		Coil Resistance	Must Operate Voltage	Must Release Voltage	Max. Voltage	Power Consumption		
	50Hz	60Hz					50Hz	60Hz	
AC	24	440	353	80%	60Hz: min. 30% 50Hz: min. 25%	110%	14VA	9.6VA (60Hz)	
	110	116	96						
	220	55	45						
DC	12	210	210		min. 10%	-	-	-	2.5W
	24	97	97						
	48	67	67						
	110	26.5	26.5						

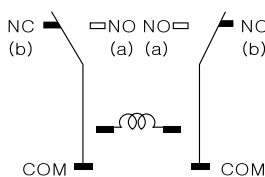
Coil Ratings

Item	Resistive Load ($\cos \theta = 1$)	Inductive Load	
		($\cos \theta = 0.4$)	L/R=7ms
Rated Load	110VAC 30A 24VDC 15A	110VAC 20A	24VDC 7.5A
Carry Current	30A		
Max. switching Voltage	500VAC, 250VDC		
Max. switching current	30A		

Contacts



KH-101-2A



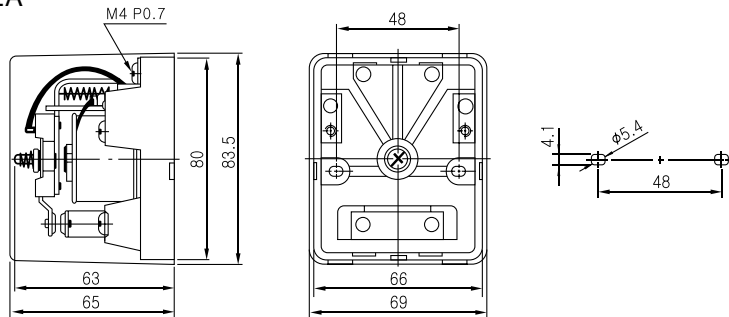
KH-101-2C

Specification

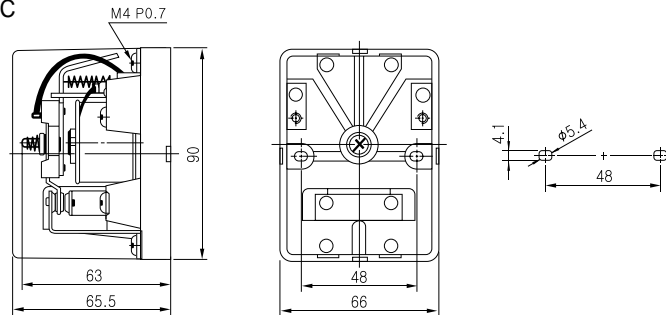
Contact Resistance	50mΩ Max.
Operate Time	50 ms Max.
Release Time	50 ms Max.
Max. Operating Frequency	1,800 operations/hour
Insulation Resistance	100MΩ min.(at 500VDC)
Dielectric Strength	2,000VAC(50/60Hz) for 1 minutes
Vibration Resistance	Destruction: 10~55 Hz 1.5 mm double amplitude Malfunction: 0~40Hz 1.5 mm double amplitude
Shock Resistance	Destruction: 80G Malfunction: 4G
Materials	Cover: PC; Body: Phenol; Coil: Polyurethan coated copper wire ; Spring: stainless steel wire; Terminal: brass
Endurance	Mechanical: 5,000,000 operations Electrical: 200,000 operations
Ambient Temperature	- 5~+40
Ambient Humidity	45~85% RH
Weight	2A: 300g 2C: 350g

Dimensions

KH-101-2A



KH-101-2C



10A POWER RELAYS KH-102 SERIES



CLASSIFICATION

KH - 102 - 2C L - 110VAC

① Contacts	2C	2a+2b contact
	3C	3a+3b contact
② Indicator	none	no indicator
	L	LED
③ Coil Ratings	See 'Coil ratings'	

Coil Ratings

Rated Voltage	Rated Current		Coil Resistance	Must Operate Voltage	Must Release Voltage	Max. Voltage	Power Consumption	
	50Hz	60Hz					50Hz	60Hz
AC	6	490	420	80% Max.	30% min.	110%	3VA	2.5VA
	12	245	210					
	24	121	105					
	50	58	50					
	110	27	23					
	220	13.3	11.5					
	230	12.7	11					
240	12.1	10.5						
DC	6	240		15% min.			1.5W	
	12	120						
	24	60						
	48	30						
	110	13						

Contact Ratings

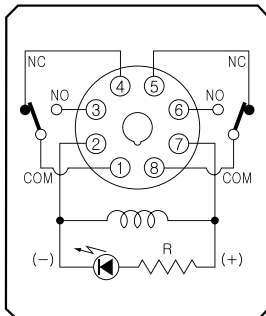
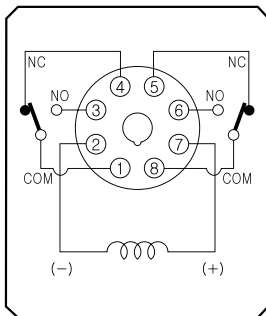
Item	Resistive Load ($\cos \Theta = 1$)	Inductive Load	
		($\cos \Theta = 0.4$)	L/R=7ms
Rated Load	110VAC 10A 220VAC 7A 24VDC 7A	110VAC 7.5A 220VAC 5A	24VDC 7.5A
Carry Current	10A		
Max. switching Voltage	AC: 1,650VA DC: 240W	AC: 1,100VA DC: 225W	
Max. switching current	10A		

Specification

Contact Resistance	30mΩ Max.
Operate Time	25 ms Ma.
Release Time	25 ms Max.
Max. Operating Frequency	1,800 operations/hr
Insulation Resistance	100MΩ min.(at 500VDC)
Dielectric Strength	1,500VAC(50/60Hz) for 1 minutes
Vibration Resistance	0~6G, 55Hz Max.
Shock Resistance	10G
Materials	Cover: PC; Base: PBT glass; Coil: Polyurethan coated copper wire pring: stainless steel wire; Movable plate: PBS + phosphor bronze Terminal: brass
Endurance	Mechanical: 50,000,000 operations Electrical: 500,000 operations
Ambient Temperature	-5~+40
Ambient Humidity	45~85% RH
Weight	KH-102-2C: 81g KH-102-3C: 91g

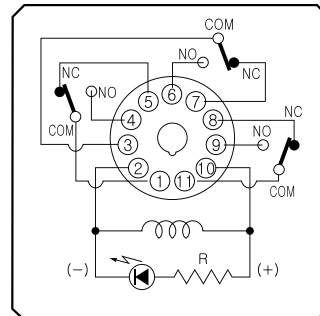
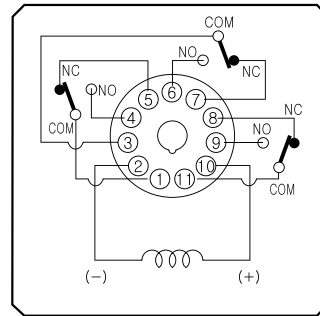
Wiring Diagram

KH-102-2C



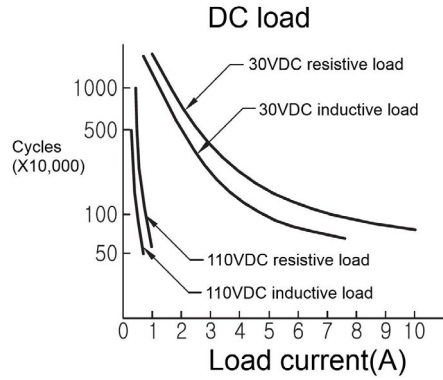
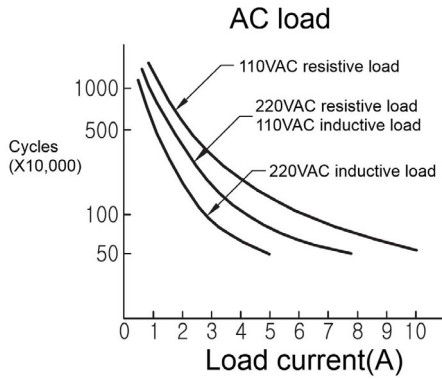
LED type

KH-102-3C



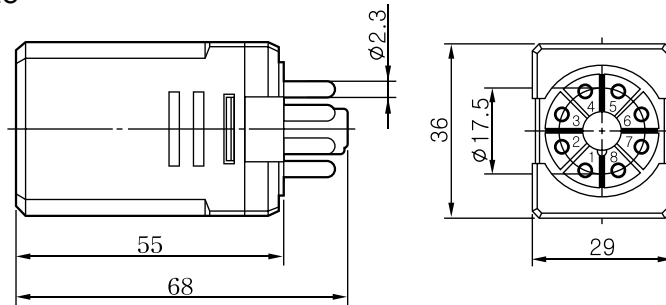
LED 内装形

Curves electrical lifetime

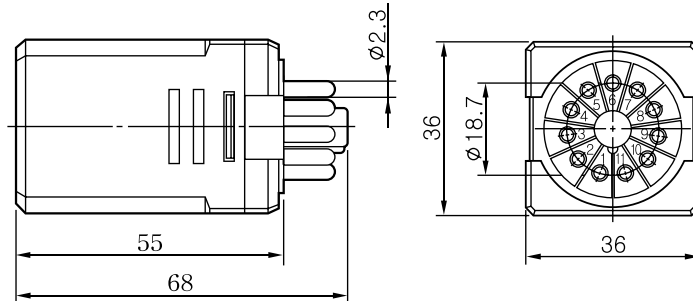


Dimensions

KH-102-2C



KH-102-3C



SQUARE LIGHT

TOWER LIGHT

BUZZER

TIMER & COUNTER

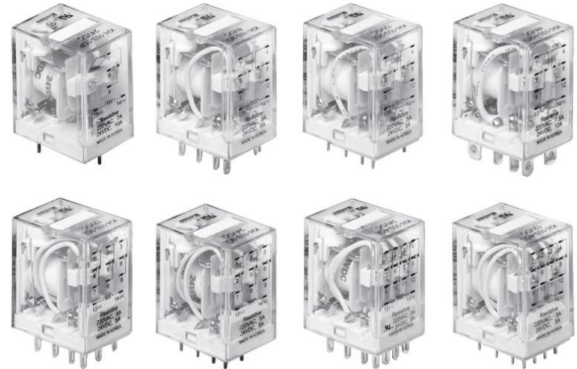
RELAY

SOCKETS

TERMINAL BLOCKS

CONTROL BOX

MINIATURE POWER RELAYS KH-103 SERIES



CLASSIFICATION

KH - 103 - 4C P L - 110VAC

① Contacts	1C	SPDT
	2C	DPDT
	3C	3PDT
	4C	4PDT
② Terminal	H2C	H2C
	none	for socket
	P	for PCB
③ Indicator	none	no indicator
	L	LED
④ Coil Ratings	See 'Coil ratings'	

Coil Ratings

Rated Voltage	Rated Current								Coil Resistance				Max. Continuous Applied Voltage	Pickup Voltage	Must Release Voltage	
	50Hz				60Hz											
	1C	2C	3C	4C	1C	2C	3C	4C	1C	2C	3C	4C				
AC	6	238	238	238	238	200	200	200	200	9.6	9.6	9.6	9.6	110%	80% Max.	30% min.
	12	118	118	118	118	100	100	100	100	40.5	40.5	40.5	40.5			
	24	59.7	59.7	59.7	59.7	50	50	50	50	156.7	156.7	156.7	156.7			
	50	28.3	28.3	28.3	28.3	24	24	24	24	706	706	706	706			
	110	14.2	14.2	14.2	14.2	12	12	12	12	3,390	3,390	3,390	3,390			
	120	7.2	-	-	-	6	-	-	-	13,920	-	-	-			
	220	-	7.2	7.2	7.2	-	6	6	6	-	13,920	13,920	13,920			
	230	-	7.2	-	7.2	-	6	-	6	-	13,930	-	13,930			
240	-	6.6	-	6.6	-	5.5	-	5.5	-	15,210	-	15,210				
DC	6	150								40						
	12	75								160						
	24	36.9								650						
	48	18.5								2,600						
	110	9.1								12,100						

Contact Ratings

Item	Resistive Load ($\cos \Theta = 1$)				
	1C	2C	3C	4C	H2C
Rated Load	110VAC 10A 220VAC 7A 24VDC 10A	220VAC 5A 24VDC 5A	220VAC 5A 24VDC 5A	220VAC 3A 24VDC 3A	110VAC 10A 220VAC 7.5A 24VDC 10A
Carry Current	10A				
Max. switching Voltage	AC: 1,540VA DC: 168W	AC: 1,100VA DC: 120W	AC: 1,100VA DC: 120W	AC: 660VA DC: 72W	AC: 1,650VA DC: 240W
Max. switching current	10A	10A	10A	10A	10A

Item	Inductive Load ($\cos \Theta = 0.3$)				
	1C	2C	3C	4C	H2C
Rated Load	110VAC 3A 220VAC 3A	220VAC 5A 24VDC 5A	220VAC 2A	110VAC 1.5A 220VAC 0.8A	110VAC 7.5A 220VAC 5A
Carry Current	10A	5A	5A	3A	10A
Max. switching Voltage	AC: 660VA DC: 72W	AC: 440VA DC: 48W	AC: 440VA DC: 48W	AC: 176VA DC: 24W	AC: 1,100VA DC: 225W
Max. switching current	10A	5A	5A	3A	

Item	Inductive Load ($L/R = 7ms$)				
	1C	2C	3C	4C	H2C
Rated Load	24VDC 3A	24VDC 2A	24VDC 2A	24VDC 1A	24VDC 7.5A
Carry Current	10A	5A	5A	3A	10A
Max. switching Voltage	AC: 660VA DC: 72W	AC: 440VA DC: 48W	AC: 440VA DC: 48W	AC: 176VA DC: 24W	AC: 1,100VA DC: 225W
Max. switching current	10A	5A	5A	3A	10A

SQUARE LIGHT

TOWER LIGHT

BUZZER

TIMER & COUNTER

RELAY

SOCKETS

TERMINAL BLOCKS

CONTROL BOX

Specification

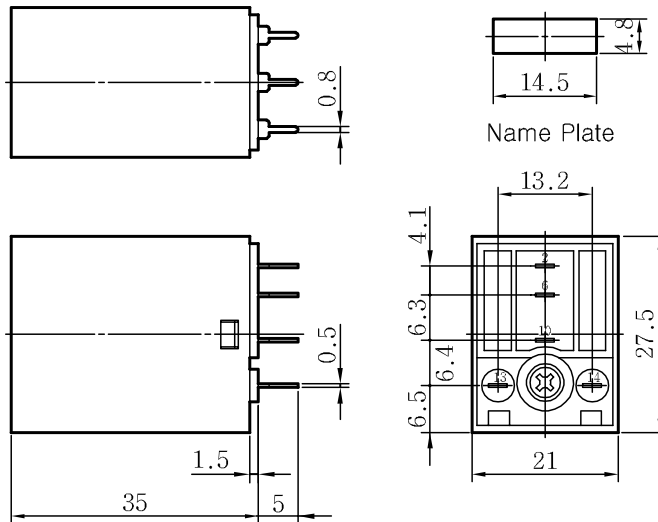
Item		SPDT	2PDT	3PDT	4PDT	H2C
Contact Resistance		30mΩ Max.	50mΩ Max.			30mΩ Max.
Operate Time		20 ms Max.				
Release Time		20 ms Max.				
Max. Operating Frequency		1,800 operations/hour				
Insulation Resistance		min. 100MΩ (at 500VDC)				
Dielectric Strength	Between live and dead parts	1,500VAC(50/60Hz) for 1 minutes				
	Between contact and coil	1,000VAC(50/60Hz) for 1 minutes				
	Between contacts of the same pole	1,000VAC(50/60Hz) for 1 minutes				
Temperature elevation		Coil: 85 Max, Contact: 65 Max.				
Vibration Resistance		0~6G, 55Hz Max.				
Shock Resistance		20G				
Endurance		Mechanical: 50,000,000 operations Electrical: 200,000 operations				
Ambient Temperature		-10 ~+40				
Materials		Cover: PC (transparent)				
		Base: PBT glass				
		Coil: Polyurethane coated copper wire				
		Spring: Stainless steel wire				
		Movable contact: PBS + phosphor bronze				
		Terminal: Brass				
Weight		32g		35g		

KH-103-1C (SPDT)



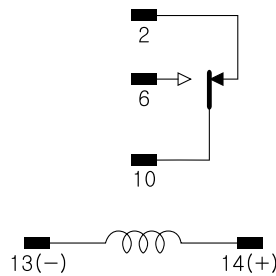
Dimensions

KH-103-1CP, 1CPL



Wiring Diagram

KH-103-1CP, 1CPL



SQUARE LIGHT

TOWER LIGHT

BUZZER

TIMER & COUNTER

RELAY

SOCKETS

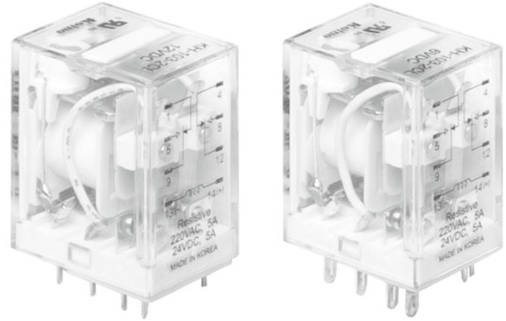
TERMINAL BLOCKS

CONTROL BOX



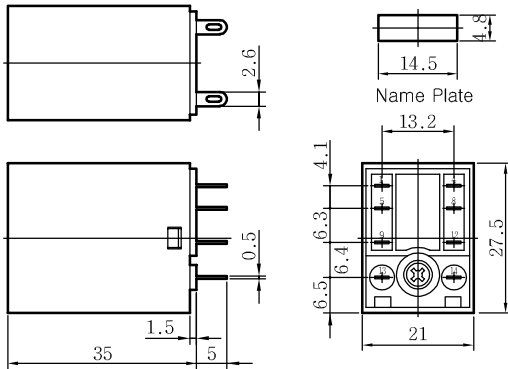
GENERAL PURPOSE RELAYS

KH-103-2C (DPDT)

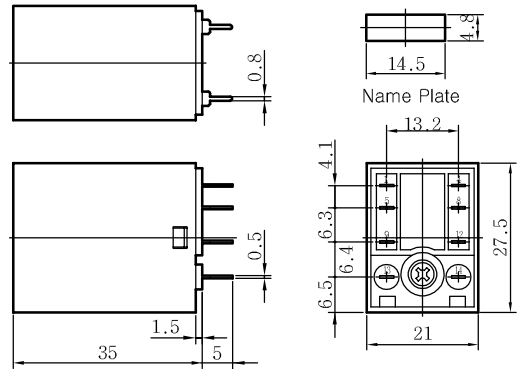


Dimensions

KH-103-2C,2CL

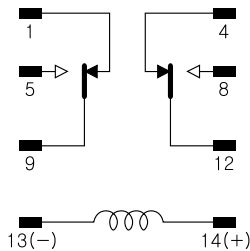


KH-103-2CP,2CPL

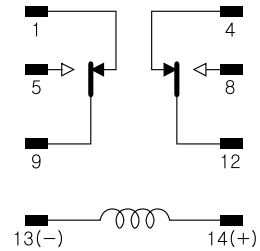


Wiring Diagram

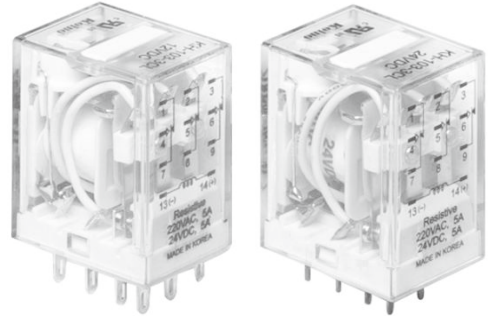
KH-103-2C,2CL



KH-103-2CP,2CPL



KH-103-3C (3PDT)



SQUARE LIGHT

TOWER LIGHT

BUZZER

TIMER & COUNTER

RELAY

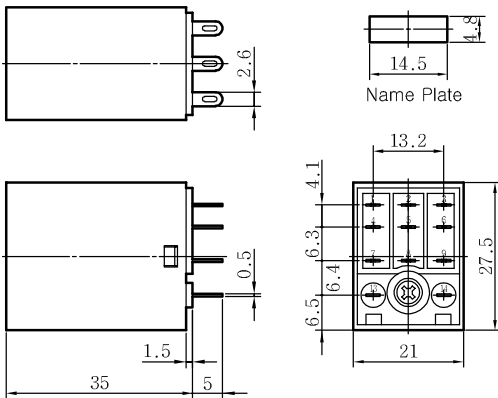
SOCKETS

TERMINAL BLOCK

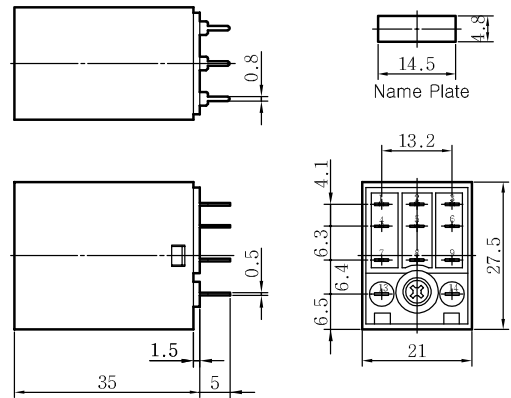
CONTROL BOX

Dimensions

KH-103-3C,3CL

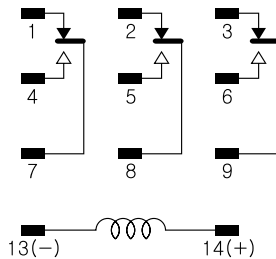


KH-103-3CP,3CPL

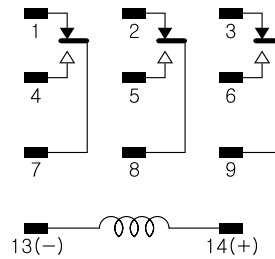


Wiring Diagram

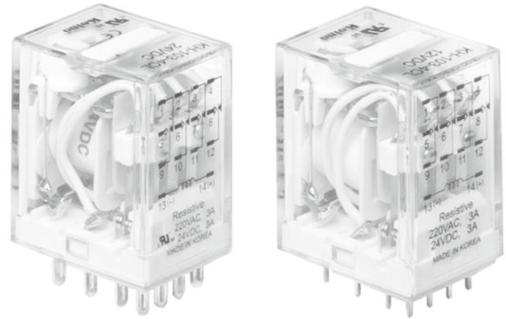
KH-103-3C,3CL



KH-103-3CP,3CPL

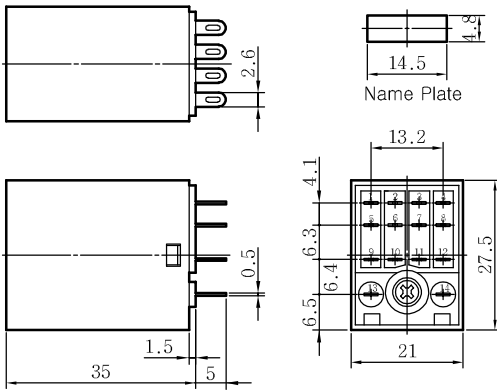


KH-103-4C (4PDT)

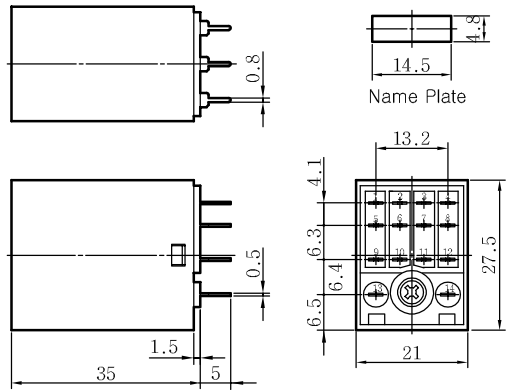


Dimensions

KH-103-4C,4CL

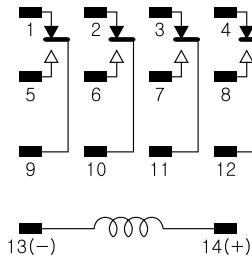


KH-103-4CP,4CPL

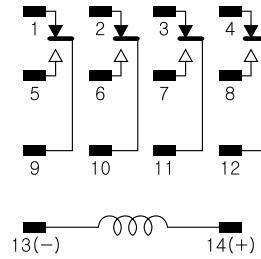


Wiring Diagram

KH-103-4C,4CL



KH-103-4CP,4CPL

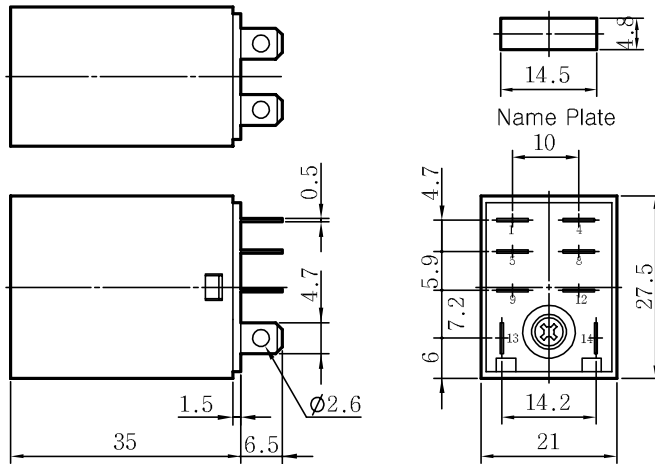


KH-103-H2C(10A)



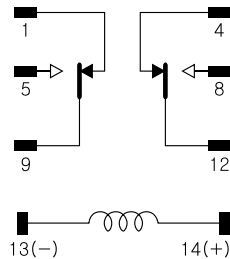
Dimensions

KH-103-H2C,H2CL



Wiring Diagram

KH-103-H2C,H2CL



SQUARE LIGHT

TOWER LIGHT

BUZZER

TIMER & COUNTER

RELAY

SOCKETS

TERMINAL BLOCKS

CONTROL BOX

KOINOX