

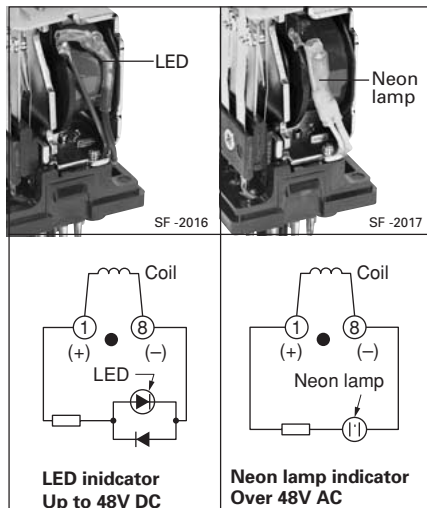
General purpose relays HH22, 23, 24

■ Description

These high quality general purpose relays are suitable for multi-pole switching and, although economically priced, are dependable and sturdily constructed. They are available with coil voltages 24–130V DC and 24–240V AC with continuous current ratings of either 4 or 6 Amps. Standard contact buttons are silver. Contact arrangements are 2PDT, 3PDT and SPDT+2NO+1NC. Relays are enclosed in a polycarbonate dust cover with octal type 8 or 11 pin plugs.

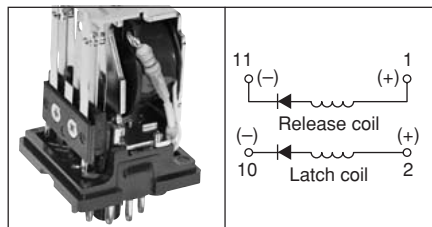
■ Versions

Operating status indicator



These relays can be supplied with a visual operating indicator which greatly simplifies troubleshooting in all types of electrical control equipment.

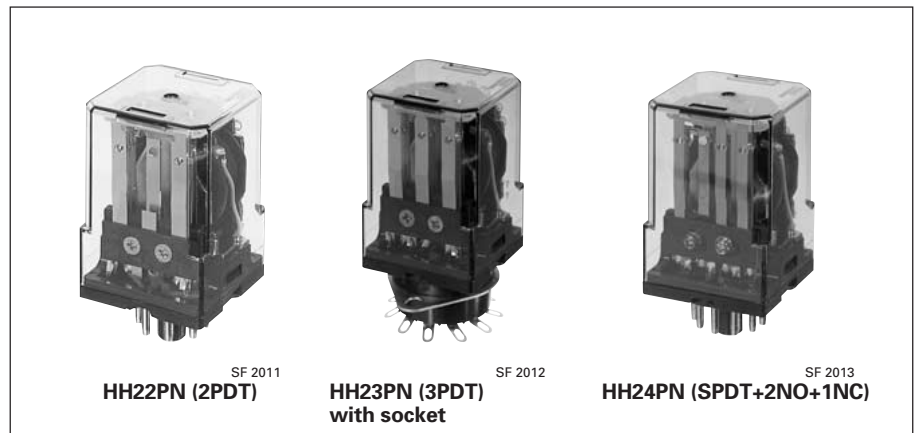
Dual coil magnetically held



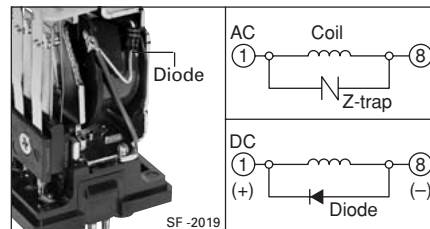
A momentary pulse to one of two coils results in the contacts being firmly held in one of two positions without further flow of current.

This gives this class of relays a good memory stability since it will retain a permanent latch position despite a loss of power.

Coil ratings are 24–220V AC and 24–110V DC.



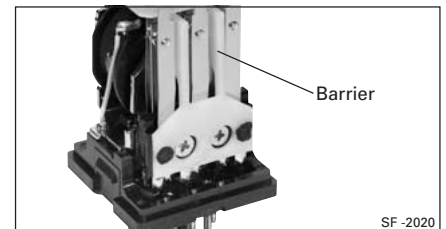
Surge suppression



We can supply the relays with surge suppression device.

These relays can be applied for AC and DC operation.

Arc-barrier



The HH23PN-B is provided with arc-barriers which gives it protection from excessive loads. It can safely be used on polarized circuits and even small motor loads.

■ Type number nomenclature

Basic type	HH23PN	JBL	AC110V50Hz
Contact arrangement	2: 2PDT 3: 3PDT 4: SPDT+2NO+1NC		
Mounting method	P: Plug-in		
Contact form	N: Single W: Bifurcated		
Wiring	Blank: Wiring A (Standard) T: Wiring B K: Wiring C (See page 03/44.)		
Coil voltage	AC: 24 to 240V AC DC: 24 to 130V DC		
Indicators	Blank: Without indicator L: With indicator (neon-lamp or LED)		
Versions	B: With arc-barrier F: With surge suppression device BF: With arc barrier and surge suppression device R: Magnetically held type RB: Magnetically held type with arc barrier		
Contact	Blank: Ag (standard) J: Au-plated Ag		

Note: HH24PN type and relays with bifurcated contacts cannot be provided with arc barrier.

■ Ordering information

Specify the following:

1. Ordering code or type number

Industrial Control Relays

General purpose relays

HH22, 23, 24

■ Versions (Plug-in mounting)

Relays

Classification		Contact form and arrangement		Wiring diagram A		Wiring diagram B		Wiring diagram C	
				Type	Ordering code	Type	Ordering code	Type	Ordering code
Standard	Without LED	Single	2PDT	HH22PN	RC2CP-■	HH22PN-T	RC2CPT-■	HH22PN-K	
			3PDT	HH23PN	RC3CP-■	HH23PN-T	RC3CPT-■	HH23PN-K	RC3CPK-■
			2NO+1NC+SPDT	HH24PN	RC4MP-■	—	—	—	—
		Bifurcated	2PDT	HH22PW	RC2CPW-■	HH22PW-T	RC2CPWT-■	HH22PW-K	
			3PDT	HH23PW	RC3CPW-■	HH23PW-T	RC3CPWT-■	HH23PW-K	RC3CPWK-■
			2NO+1NC+SPDT	HH24PW	RC4MPW-■	—	—	—	—
	With LED	Single	2PDT	HH22PN-L	RC2CPL-■	HH22PN-TL	RC2CPTL-■	HH22PN-KL	
			3PDT	HH23PN-L	RC3CPL-■	HH23PN-TL	RC3CPTL-■	HH23PN-KL	RC3CPKL-■
			2NO+1NC+SPDT	HH24PN-L	RC4MPL-■	—	—	—	—
		Bifurcated	2PDT	HH22PW-L	RC2CPWL-■	HH22PW-TL	RC2CPWTL-■	HH22PW-KL	
			3PDT	HH23PW-L	RC3CPWL-■	HH23PW-TL	RC3CPWTL-■	HH23PW-KL	RC3CPWKL-■
			2NO+1NC+SPDT	HH24PW-L	RC4MPWL-■	—	—	—	—
With surge suppression device	Without LED	Single	2PDT	HH22PN-F	RC2CPF-■	HH22PN-TF	RC2CPTF-■	HH22PN-KF	
			3PDT	HH23PN-F	RC3CPF-■	HH23PN-TF	RC3CPTF-■	HH23PN-KF	RC3CPKF-■
			2NO+1NC+SPDT	HH24PN-F	RC4MPF-■	—	—	—	—
		Bifurcated	2PDT	HH22PW-F	RC2CPWF-■	HH22PW-TF	RC2CPWTF-■	HH22PW-KF	
			3PDT	HH23PW-F	RC3CPWF-■	HH23PW-TF	RC3CPWTF-■	HH23PW-KF	RC3CPWKF-■
			2NO+1NC+SPDT	HH24PW-F	RC4MPWF-■	—	—	—	—
	With LED	Single	2PDT	HH22PN-FL	RC2CPG-■	HH22PN-TFL	RC2CPTG-■	HH22PN-KFL	
			3PDT	HH23PN-FL	RC3CPG-■	HH23PN-TFL	RC3CPTG-■	HH23PN-KFL	RC3CPKG-■
			2NO+1NC+SPDT	HH24PN-FL	RC4MPG-■	—	—	—	—
		Bifurcated	2PDT	HH22PW-FL	RC2CPWG-■	HH22PW-TFL	RC2CPWTG-■	HH22PW-KFL	
			3PDT	HH23PW-FL	RC3CPWG-■	HH23PW-TFL	RC3CPWTG-■	HH23PW-KFL	RC3CPWKG-■
			2NO+1NC+SPDT	HH24PW-FL	RC4MPWG-■	—	—	—	—
With arc barrier	Without LED	Single	2PDT	(HH22PN	RC2CP-■)	(HH22PN-T	RC2CPT-■)	(HH22PN-K	
		Bifurcated	3PDT	HH23PN-B	RC3CPB-■	HH23PN-TB	RC3CPBT-■	HH23PN-KB	RC3CPBK-■
	With LED	Single	2PDT	(HH22PN-L	RC2CPL-■)	(HH22PN-TL	RC2CPTL-■)	(HH22PN-KL	
		Bifurcated	3PDT	HH23PN-BL	RC3CPBL-■	HH23PN-TBL	RC3CPBTL-■	HH23PN-KBL	RC3CPBKL-■
With arc barrier and surge suppression device	Without LED	Single	2PDT	(HH22PN	RC2CP-■)	(HH22PN-T	RC2CPT-■)	(HH22PN-K	
		Bifurcated	3PDT	HH23PN-B	RC3CPB-■	HH23PN-TB	RC3CPBT-■	HH23PN-KB	RC3CPBK-■
	With LED	Single	2PDT	(HH22PN-L	RC2CPL-■)	(HH22PN-TL	RC2CPTL-■)	(HH22PN-KL	
		Bifurcated	3PDT	HH23PN-BL	RC3CPBL-■	HH23PN-TBL	RC3CPBTL-■	HH23PN-KBL	RC3CPBKL-■
Magnetically held	Without LED	Single	2PDT	HH22PN-R	RC2CPR-■	—	—	—	—
		Bifurcated	3PDT	HH23PN-R	RC3MPR-■	—	—	—	—
	With LED	Single	2PDT	HH22PN-RL	RC2CPL-■	—	—	—	—
		Bifurcated	3PDT	HH23PN-RL	RC3MPRL-■	—	—	—	—
Magnetically held with arc barrier	Without LED	Single	2PDT	HH22PN-RB	RC2CPR-■	—	—	—	—
		Bifurcated	3PDT	HH23PN-RB	RC3MPRB-■	—	—	—	—
	With LED	Single	2PDT	HH22PN-RBL	RC2CPL-■	—	—	—	—
		Bifurcated	3PDT	HH23PN-RBL	RC3MPRBL-■	—	—	—	—

Notes: • Enter the coil voltage code in the ■ mark.
• Although the type in parenthesis denotes a relay having no arc barriers, it has good insulation performance equal to the relay with arc barriers, as it has enough insulation distance between contacts.

Sockets

Description	Type	Ordering code	Used with
Soldering	8-pin	8GB	RX8G
	11-pin	11GB	RX1G
Surface mounting screw terminal	8-pin	TP38S	RX38S0
	11-pin	TP311S	RX31S0
Rail mounting, screw terminal	8-pin	TP38X	RX38X0
	11-pin	TP311X	RX31X0
Hold-down Spring		FX1B	RZ1B
		FX1C	RZ1C

■ Operating current and electrical durability

Voltage	Current (A)		Electrical durability (×10 ³ operations)	
	Make	Break	HH22PN, 23PN, 24PN HH22PW, 23PW	HH24PW
200V AC Ind. load	15 *1	3 *2	200	100
	10	1	600	300
	3	0.3	2400	1200
200V AC Res. load	3	3	800	400
	1	1	3000	1500
24V DC Ind. load	1 *3	1 *3	600	300
	0.3	0.3	3000	1500
100V DC Res. load	0.5	0.5	1000	500
	0.1	0.1	5000	4000
24V DC Res. load	3	3	600	300
	0.5	0.5	5000	3000

Note: Power factor: *1 cosφ=0.7 *2 cosφ=0.3 to 0.4
Time constant: *3 T=15ms

■ Specifications

Basic type		HH22P	HH23P	HH24P
Rated thermal current (A)		6	6	4
Rated insulation voltage		250V		
Pick-up voltage (at 20°C)	AC DC	80% of rated voltage 75% of rated voltage		
Drop-out voltage (at 20°C)	AC DC	30% of rated voltage 10% of rated voltage		
Max. power supply voltage	AC DC	110% of rated voltage 130% of rated voltage		
Operating temperature		-20 to +40°C, avoid icing		
Dielectric strength		2000V AC rms., 1minute between coil and contact 2000V AC rms., 1minute between poles 1500V AC rms., 1minute between open contacts 2000V AC rms., 1minute between socket terminals		
Insulation resistance		100MΩ (500V DC megger)		
Operating time		20ms or less		
Vibration		Mechanical and malfunction durability: 10 to 55Hz, 0.75mm double amplitude		
Shock		Malfunction durability: 60m/s ² Mechanical durability: 500m/s ²		
Durability	Mechanical Electrical	50 million operations See page 03/42		
Contact resistance		50mΩ max. before use		
Contact material		Silver-alloy		

■ Coil characteristics

• AC coil

Rated voltage (V)	Coil voltage code	Rated current (mA)		Coil resistance (Ω)	Coil color	Power consumption (VA)	
		50Hz	60Hz			50Hz	60Hz
24	AE	137	125	53	Clear	3.3	3
48	AF	69	63	230	Clear		
100	A1	33	30	900	Green		
200	A2	16	15	3960	Yellow		
220	AM	15	13	4520	Clear		

Note: Other voltages between 24V and 240V AC are available.

• DC coil

Rated voltage (V)	Code voltage code	Rated current (mA)	Coil resistance (Ω)	Coil color	Power consumption (W)
24	DE	67	360	Reddish brown	1.6
48	DF	33	1460	Red	
100	D1	16	6260	Blue	
110	DH	16	7570	Clear	

Note: Other voltages between 24V and 130V DC are available.

■ UL and CSA approved

UL file No. E42419

CSA file No. LR20479

● Relays

Contact	Wiring	Type	Ordering code
2PDT	Single	A	HH22PN-UL
		C	HH22PN-K-UL
	Bifurcated	A	HH22PW-UL
		C	HH22PW-K-UL
3PDT	Single	A	HH23PN-UL
		B	HH23PN-T-UL
	Single	C	HH23PN-K-UL
		A	HH23PW-UL
	Bifurcated	A	HH23PW-UL
		B	HH23PW-T-UL
	Bifurcated	B	HH23PW-T-UL
		C	HH23PW-K-UL

Note: Enter the coil voltage code in the ■ mark.

● Socket

Type	Ordering code	Used with	Type	Ordering code	Used with
8GB-UL	RX8G-ZU	HH22P	11GB-UL	RX1G-ZU	HH23P

● Ratings

Type	Contact ratings			
	Voltage	Single-phase motor (HP)	Resistive load (A)	Inductive load (A)
HH22P□-UL	120V AC	1/4	6	2
HH22P□-T-UL	240V AC	1/2	6	—
HH23P□-UL	30V DC	—	6	3 (15ms)
HH23P□-T-UL	120V DC	—	0.5	0.3 (15ms)

Note: () : Time constant

Industrial Control Relays
General purpose relays
HH22, 23, 24

■ Lloyd approved

Type	Ordering code	Voltage	Contact Arrangement	Form	Continuous current (A)	Approved No.
HH22PN HH23PN HH24PN	RX2CP-■ZL RX3CP-■ZL RX4MP-■ZL	6 to 220V AC 50/60Hz 6 to 110V DC	2PDT 3PDT 2NO+1NC+SPDT	Single	6	YKA052811
HH22PN-T HH23PN-T	RX2CPT-■ZL RX3CPT-■ZL		2PDT 3PDT		4	
HH22PW HH23PW HH24PW	RX2CPW-■ZL RX3CPW-■ZL RX4MPW-■ZL		2PDT 3PDT 2NO+1NC+SPDT		6	
HH22PW-T HH23PW-T	RX2CPWT-■ZL RX3CPWT-■ZL		2PDT 3PDT	Bifurcated	4	
					6	

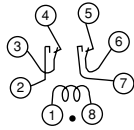
Note: Enter the coil voltage code in the ■ mark.

■ Internal wirings

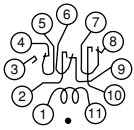
● Standard

Wiring A

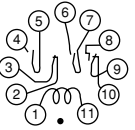
HH22PN
HH22PW



HH23PN
HH23PW

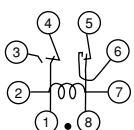


HH24PN
HH24PW

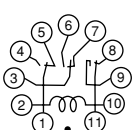


Wiring B

HH22PN-T
HH22PW-T

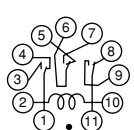


HH23PN-T
HH23PW-T



Wiring C

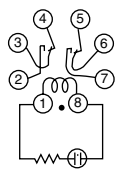
HH23PN-K
HH23PW-K



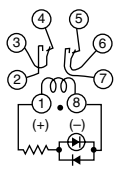
● With operation indicator

HH22PN-L
HH22PW-L

100, 200V

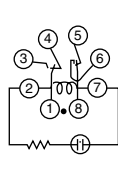


24, 48V*

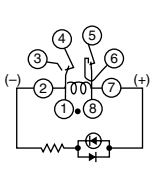


HH22PN-TL
HH22PW-TL

100, 200V

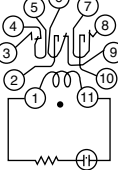


24, 48V*

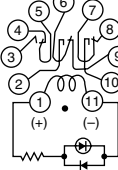


HH23PN-L
HH23PW-L

100, 200V

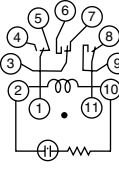


24, 48V*

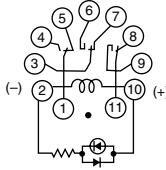


HH23PN-TL
HH23PW-TL

100, 200V



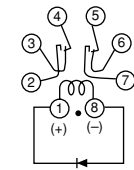
24, 48V*



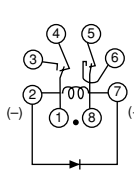
*Be careful that DC coil terminals have polarity

● With surge suppression device (DC coil)

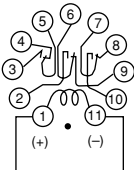
HH22PN-F
HH22PW-F



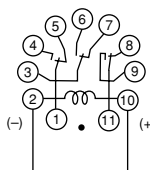
HH22PN-TF
HH22PW-TF



HH23PN-F
HH23PW-F

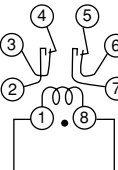


HH23PN-TF
HH23PW-TF

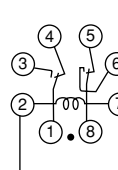


● With surge suppression device (AC coil)

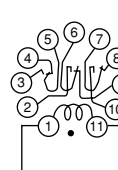
HH22PN-F
HH22PW-F



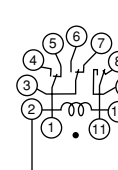
HH22PN-TF
HH22PW-TF



HH23PN-F
HH23PW-F

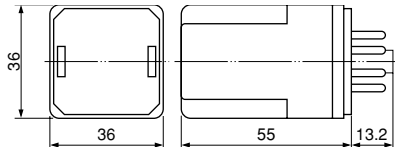


HH23PN-TF
HH23PW-TF



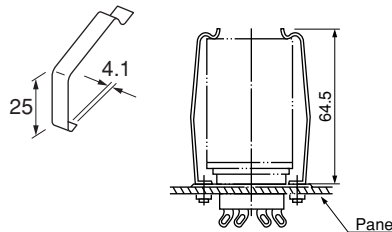
■ Dimensions, mm

• Relays

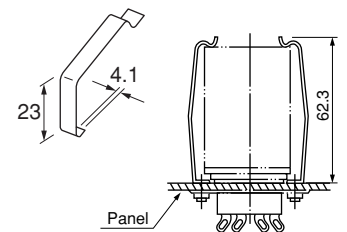


Mass: Approx. 100g

• Hold-down spring FX1B



FX1C

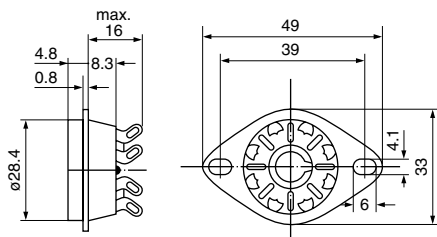


■ Dimensions, mm

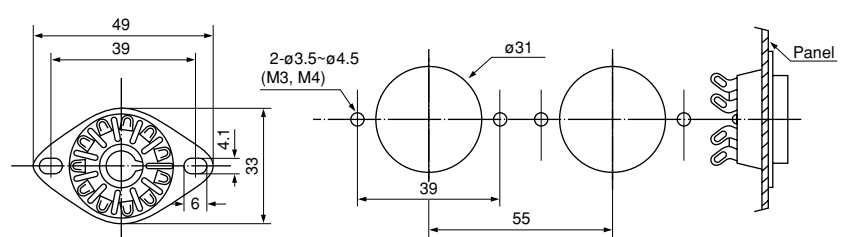
• Sockets

Soldering/8GB, 11GB

8GB



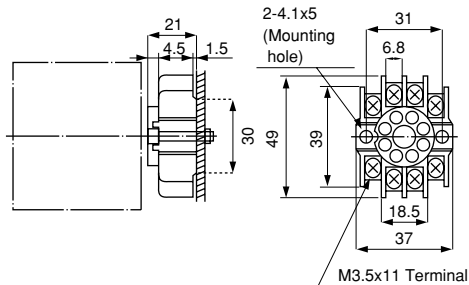
11GB



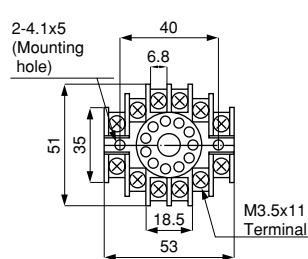
Panel cutting

Screw terminal/TP38S, TP311S

TP38S

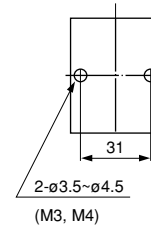


TP311S

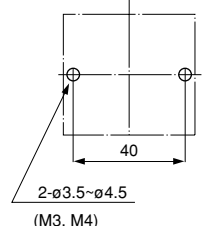


Panel drilling

TP38S

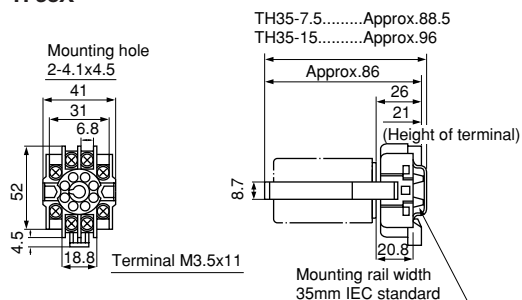


TP311S

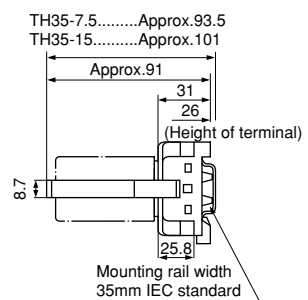
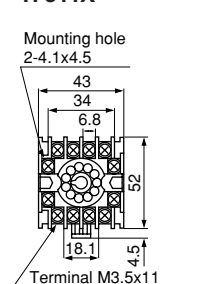


Screw terminal/Rail mounting

TP38X



TP311X



Mass (Approx.)

8-pin	11-pin
8GB 12.5g	11GB 13g
TP38S 33g	TP311S 46g
TP38X 45g	TP311X 59g