

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

LED indicator
Up to 48V DC

Neon lamp indicator
Over 48V AC

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

11 (-) 1 (+)
 Release coil (+)
 (-) 10 Latch coil 2 (+)

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

AC Coil (1) (8) Z-trap

DC Coil (+) (-) (1) (8) Diode

SF -2019

We can supply the relays with surge suppression device. These relays can be applied for AC and DC operation.

Arc-barrier

Barrier

SF -2020

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**

HH23PN-JBL AC110V50Hz

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

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■ 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 3PDT	HH22PN HH23PN	RC2CP-■ RC3CP-■	HH22PN-T HH23PN-T	RC2CPT-■ RC3CPT-■	HH22PN-K HH23PN-K	RC3CPK-■
		Bifurcated	2NO+1NC+SPDT 2PDT 3PDT	HH24PN HH22PW HH23PW HH24PW	RC4MP-■ RC2CPW-■ RC3CPW-■ RC4MPW-■	- HH22PW-T HH23PW-T	RC2CPWT-■ RC3CPWT-■	HH22PW-K HH23PW-K	RC3CPWK-■
		Single	2PDT 3PDT	HH22PN-L HH23PN-L	RC2CPL-■ RC3CPL-■	HH22PN-TL HH23PN-TL	RC2CPTL-■ RC3CPTL-■	HH22PN-KL HH23PN-KL	RC3CPKL-■
	With LED	Bifurcated	2NO+1NC+SPDT 2PDT 3PDT	HH24PN-L HH22PW-L HH23PW-L HH24PW-L	RC4MPL-■ RC2CPWL-■ RC3CPWL-■ RC4MPWL-■	- HH22PW-TL HH23PW-TL	RC2CPWTL-■ RC3CPWTL-■	HH22PW-KL HH23PW-KL	RC3CPWKL-■
		Single	2PDT 3PDT	HH22PN-F HH23PN-F	RC2CPF-■ RC3CPF-■	HH22PN-TF HH23PN-TF	RC2CPTF-■ RC3CPTF-■	HH22PN-KF HH23PN-KF	RC3CPKF-■
		Bifurcated	2NO+1NC+SPDT 2PDT 3PDT	HH24PN-F HH22PW-F HH23PW-F HH24PW-F	RC4MPF-■ RC2CPWF-■ RC3CPWF-■ RC4MPWF-■	- HH22PW-TF HH23PW-TF	RC2CPWTF-■ RC3CPWTF-■	HH22PW-KF HH23PW-KF	RC3CPWKF-■
With surge suppression device	Without LED	Single	2PDT 3PDT	HH22PN-FL HH23PN-FL	RC2CPG-■ RC3CPG-■	HH22PN-TFL HH23PN-TFL	RC2CPTG-■ RC3CPTG-■	HH22PN-KFL HH23PN-KFL	RC3CPKG-■
		Bifurcated	2NO+1NC+SPDT 2PDT 3PDT	HH24PN-FL HH22PW-FL HH23PW-FL HH24PW-FL	RC4MPG-■ RC2CPWG-■ RC3CPWG-■ RC4MPWG-■	- HH22PW-TFL HH23PW-TFL	RC2CPWTG-■ RC3CPWTG-■	HH22PW-KFL HH23PW-KFL	RC3CPWKG-■
		Single	2PDT 3PDT	HH22PN-FL HH23PN-FL	RC2CPG-■ RC3CPG-■	HH22PN-TFL HH23PN-TFL	RC2CPTG-■ RC3CPTG-■	HH22PN-KFL HH23PN-KFL	RC3CPKG-■
	With LED	Bifurcated	2NO+1NC+SPDT 2PDT 3PDT	HH24PN-FL HH22PW-FL HH23PW-FL HH24PW-FL	RC4MPG-■ RC2CPWG-■ RC3CPWG-■ RC4MPWG-■	- HH22PW-TFL HH23PW-TFL	RC2CPWTG-■ RC3CPWTG-■	HH22PW-KFL HH23PW-KFL	RC3CPWKG-■
		Single	2PDT 3PDT	HH22PN-FL HH23PN-FL	RC2CPG-■ RC3CPG-■	HH22PN-TFL HH23PN-TFL	RC2CPTG-■ RC3CPTG-■	HH22PN-KFL HH23PN-KFL	RC3CPKG-■
		Bifurcated	2NO+1NC+SPDT 2PDT 3PDT	HH24PN-FL HH22PW-FL HH23PW-FL HH24PW-FL	RC4MPG-■ RC2CPWG-■ RC3CPWG-■ RC4MPWG-■	- HH22PW-TFL HH23PW-TFL	RC2CPWTG-■ RC3CPWTG-■	HH22PW-KFL HH23PW-KFL	RC3CPWKG-■
With arc barrier	Without LED	Single	2PDT 3PDT	(HH22PN) HH23PN-B	RC2CP-■ RC3CPB-■	(HH22PN-T) HH23PN-TB	RC2CPT-■ RC3CPBT-■	(HH22PN-K) HH23PN-KB	RC3CPBK-■
		Bifurcated	2PDT	(HH22PW)	RC2CPW-■	(HH22PW-T)	RC2CPWT-■	(HH22PW-K)	
	With LED	Single	2PDT 3PDT	(HH22PN-L) HH23PN-BL	RC2CPL-■ RC3CPBL-■	(HH22PN-TL) HH23PN-TBL	RC2CPTL-■ RC3CPBTL-■	(HH22PN-KL) HH23PN-KBL	RC3CPBKL-■
		Bifurcated	2PDT	(HH22PW-L)	RC2CPWL-■	(HH22PW-TL)	RC2CPWTL-■	(HH22PW-KL)	
With arc barrier and surge suppression device	Without LED	Single	2PDT 3PDT	(HH22PN-F) HH23PN-BF	RC2CPF-■ RC3CPBF-■	(HH22PN-TF) HH23PN-TBF	RC2CPTF-■ RC3CPBTF-■	(HH22PN-KF) HH23PN-KBF	RC3CPBKF-■
		Bifurcated	2PDT	(HH22PW-F)	RC2CPWF-■	(HH22PW-TF)	RC2CPWTF-■	(HH22PW-KF)	
	With LED	Single	2PDT 3PDT	(HH22PN-FL) HH23PN-BFL	RC2CPG-■ RC3CPBG-■	(HH22PN-TFL) HH23PN-TBFL	RC2CPTG-■ RC3CPBTG-■	(HH22PN-KFL) HH23PN-KBFL	RC3CPBKG-■
		Bifurcated	2PDT	(HH22PW-FL)	RC2CPWG-■	(HH22PW-TFL)	RC2CPWTG-■	(HH22PW-KFL)	
Magnetically held	Without LED	Single	2PDT	HH22PN-R	RC2CPR-■	-	-	-	
		Bifurcated	1NO+1NC+SPDT 2PDT	HH23PN-R HH22PW-R	RC3MPR-■ RC2CPWR-■	- -	- -	- -	
Magnetically held with arc barrier	Without LED	Single	2PDT	(HH22PN-R)	RC2CPR-■	-	-	-	
		Bifurcated	1NO+1NC+SPDT 2PDT	HH23PN-RB (HH22PW-R)	RC3MPRB-■ RC2CPWR-■	- -	- -	- -	

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 Contact material		50mΩ max. before use 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 RC2CP-■ZU
		C	HH22PN-K-UL RC2CPK-■ZU
	Bifurcated	A	HH22PW-UL RC2CPW-■ZU
		C	HH22PW-K-UL RC2CPWK-■ZU
3PDT	Single	A	HH23PN-UL RC3CP-■ZU
	Single	B	HH23PN-T-UL RC3CPT-■ZU
	Single	C	HH23PN-K-UL RC3CPK-■ZU
	Bifurcated	A	HH23PW-UL RC3CPW-■ZU
	Bifurcated	B	HH23PW-T-UL RC3CPWT-■ZU
	Bifurcated	C	HH23PW-K-UL RC3CPWK-■ZU

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

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■ 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	6 to 220V AC 50/60Hz 6 to 110V DC	2PDT 3PDT 2NO+1NC+SPDT	Bifurcated	6	
HH22PW-T HH23PW-T	RX2CPWT-■ZL RX3CPWT-■ZL		2PDT 3PDT		4	
					6	

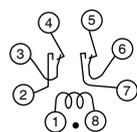
Note: Enter the coil voltage code in the ■ mark.

■ Internal wirings

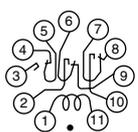
● Standard

Wiring A

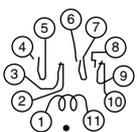
HH22PN
HH22PW



HH23PN
HH23PW

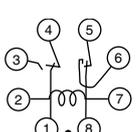


HH24PN
HH24PW

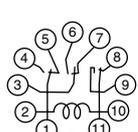


Wiring B

HH22PN-T
HH22PW-T

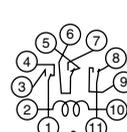


HH23PN-T
HH23PW-T



Wiring C

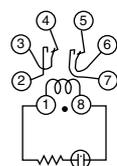
HH23PN-K
HH23PW-K



● With operation indicator

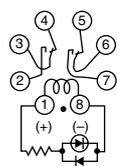
HH22PN-L
HH22PW-L

100, 200V



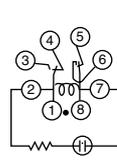
HH23PN
HH23PW

24, 48V*



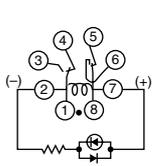
HH22PN-TL
HH22PW-TL

100, 200V



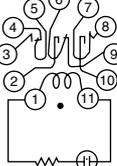
HH23PN-T
HH23PW-T

24, 48V*



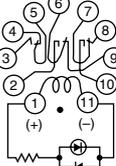
HH23PN-L
HH23PW-L

100, 200V



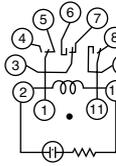
HH23PN-TL
HH23PW-TL

24, 48V*



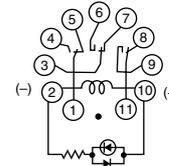
HH23PN-L
HH23PW-L

100, 200V



HH23PN-TL
HH23PW-TL

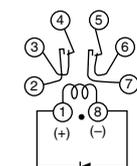
24, 48V*



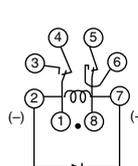
*Be careful that DC coil terminals have polarity

● With surge suppression device (DC coil)

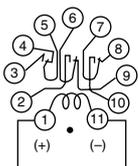
HH22PN-F
HH22PW-F



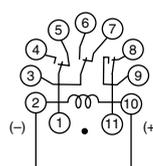
HH22PN-TF
HH22PW-TF



HH23PN-F
HH23PW-F

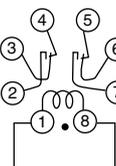


HH23PN-TF
HH23PW-TF

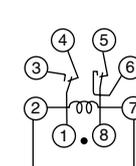


● With surge suppression device (AC coil)

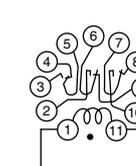
HH22PN-F
HH22PW-F



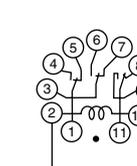
HH22PN-TF
HH22PW-TF



HH23PN-F
HH23PW-F

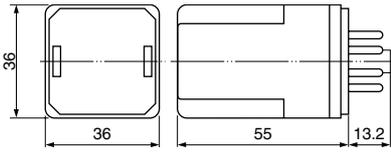


HH23PN-TF
HH23PW-TF



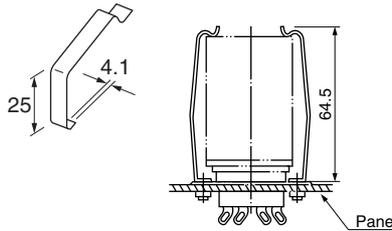
■ Dimensions, mm

• Relays

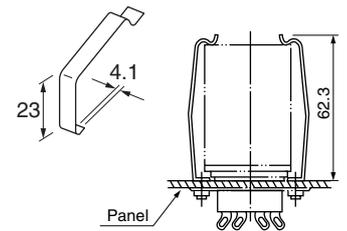


Mass: Approx. 100g

• Hold-down spring
FX1B



FX1C



■ Dimensions, mm

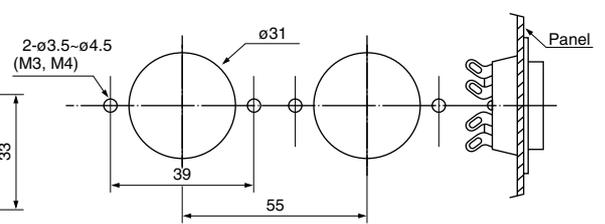
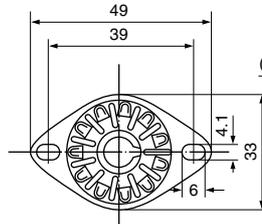
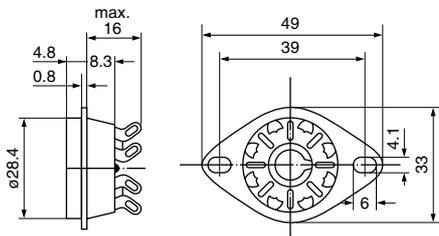
• Sockets

Soldering/8GB, 11GB

8GB

11GB

Panel cutting

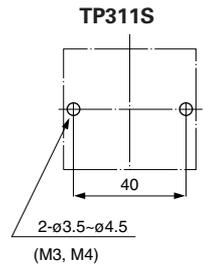
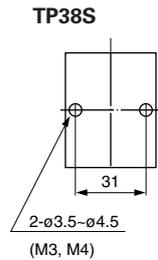
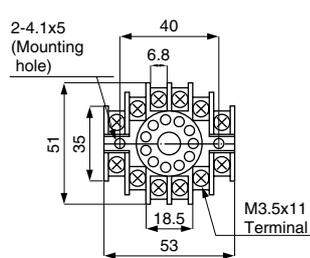
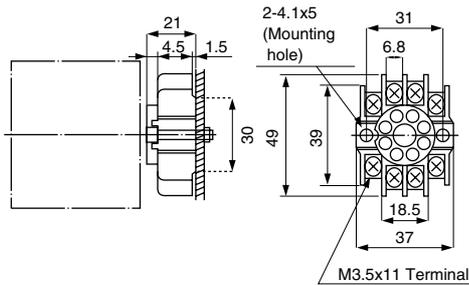


Screw terminal/TP38S, TP311S

TP38S

TP311S

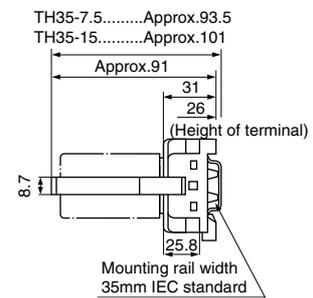
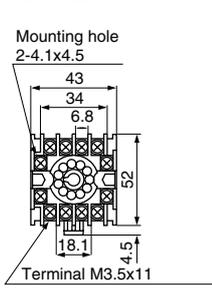
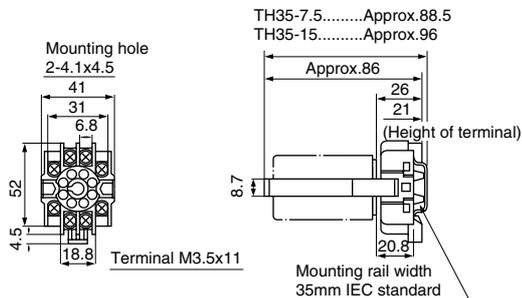
Panel drilling



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