

**Able to absorb surge voltage
in AC specification
CR circuit is built-in**

HC RELAYS WITH CR CIRCUIT



FEATURES

1. With CR circuits built in, surge voltage arising in the AC type when the coil goes to the off state is absorbed.
2. HC relay with LED indication type also available
3. UL, CSA approval is standard
Compliance also with Japanese Electrical Appliance and Material Control Law.

About Cd-free contacts

We have introduced Cadmium free type products to reduce Environmental Hazardous Substances. (The suffix "F" should be added to the part number. The Suffix "F" is required only for 1 Form C, 2 Form C, 3 Form C contact type. The 4 Form C and 4 Form C bifurcated (twin) contact type is originally cadmium-free, the suffix "F" is not required.) Please replace parts containing Cadmium with Cadmium-free products and evaluate them with your actual application before use because the life of a relay depends on the contact material and load.

TYPICAL APPLICATIONS

Suitable for factory automation equipment and automotive devices

1. Control panels, power supply equipment, molding equipment, machine tools, welding equipment, agricultural equipment, etc.
2. Office equipment, automatic vending machines, telecommunications equipment, disaster prevention equipment, copiers, measuring devices, medical equipment, amusement devices, etc.

Compliance with RoHS Directive

TYPES

1) Plug-in type

Coil voltage	1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)
	Part No.	Part No.	Part No.	Part No.	Part No.
100/110V AC	HC1-AC100V-R-F	HC2-AC100V-R-F	HC3-AC100V-R-F	HC4-AC100V-R	HC4D-AC100V-R
110/120V AC	HC1-AC120V-R-F	HC2-AC120V-R-F	HC3-AC120V-R-F	HC4-AC120V-R	HC4D-AC120V-R
200/220V AC	HC1-AC200V-R-F	HC2-AC200V-R-F	HC3-AC200V-R-F	HC4-AC200V-R	HC4D-AC200V-R
220/240V AC	HC1-AC240V-R-F	HC2-AC240V-R-F	HC3-AC240V-R-F	HC4-AC240V-R	HC4D-AC240V-R

Standard packing: Carton: 20 pcs.; Case: 200 pcs.

2) Plug-in type (with LED indication)

Coil voltage	1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)
	Part No.	Part No.	Part No.	Part No.	Part No.
100/110V AC	HC1-L-AC100V-R-F	HC2-L-AC100V-R-F	HC3-L-AC100V-R-F	HC4-L-AC100V-R	HC4D-L-AC100V-R
110/120V AC	HC1-L-AC120V-R-F	HC2-L-AC120V-R-F	HC3-L-AC120V-R-F	HC4-L-AC120V-R	HC4D-L-AC120V-R
200/220V AC	HC1-L-AC200V-R-F	HC2-L-AC200V-R-F	HC3-L-AC200V-R-F	HC4-L-AC200V-R	HC4D-L-AC200V-R
220/240V AC	HC1-L-AC240V-R-F	HC2-L-AC240V-R-F	HC3-L-AC240V-R-F	HC4-L-AC240V-R	HC4D-L-AC240V-R

Standard packing: Carton: 20 pcs.; Case: 200 pcs.

RATING

1. Coil data (Common for standard AC coil types)

2. Specifications

Characteristics	Item	Specifications
Electrical characteristics	Temperature rise	Max. 90°C (By resistive method, nominal voltage, rated current at 60°C)
Conditions	Conditions for operation, transport and storage*	Ambient temperature: -50°C to +60°C -58°F to +140°F Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)

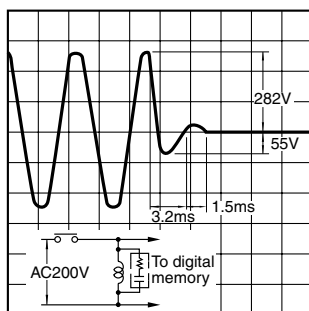
Notes: Other specifications are same as standard types.

* The upper operation ambient temperature limit is the maximum temperature that can satisfy the coil temperature rise value.
Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT.

REFERENCE DATA

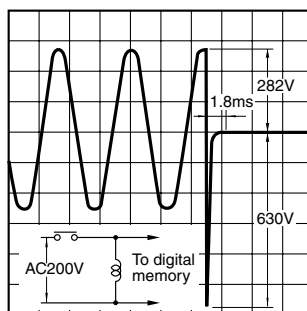
1.-(1) AC coil surge voltage waveform
(with CR circuit)

Tested sample: HC4-AC200V-R



1.-(2) AC coil surge voltage waveform
(without CR circuit)

Tested sample: HC4-AC200V

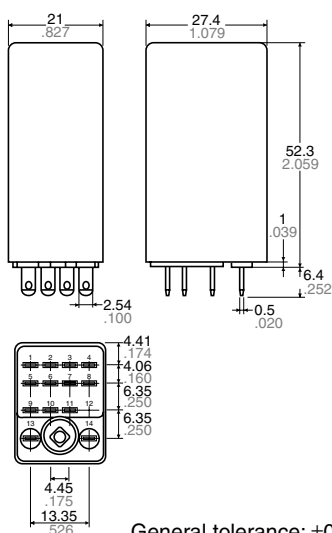


DIMENSIONS (Unit: mm inch)

Plug-in type



4 Form C External dimensions



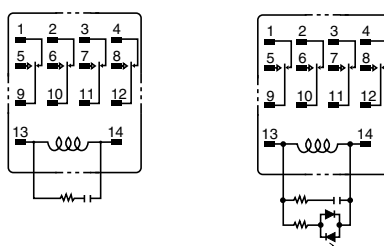
Diagrams show the external dimensions and schematic of the 4 Form C and 4-pole bifurcated (twin) types. For the 1 Form C, 2 Form C, and 3 Form C types, only the terminals differ. The dimensions of the terminal are the same as for standard type HC relays.

General tolerance: $\pm 0.3 \pm 0.012$

Schematic

Without LED indicator

With LED indicator



Connection accessories

Connection accessories (terminal sockets and sockets) are the same as for standard type HC relays. To hold the relay in place, use the hold-down clip that is provided.

For Cautions for Use, see Relay Technical Information.

HC RELAY SOCKETS

1. Plug-in type sockets, PC board type sockets, and wrapping type sockets are available for HC relays.
2. In the table below, the socket suitable for each type of HC relay is indicated by a black dot.
3. UL/CSA approval is standard.

4. A hold-down clip is included in the package.



The fixing method is the same as for HC sockets, ordinary HC terminal sockets and HL sockets.

HC/HL-LEAF-SPRING-MK

Compliance with RoHS Directive

SOCKET SELECTOR CHART

Type	No. of pole	Item	Part No.	Applicable HC relay (Plug-in type)									
				Standard/Bifurcated contact (DC)					Amber				Keep relay
				1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)	1 Form C	2 Form C	4 Form C	4 Form C (twin)	
Plug-in	1-pole	HC1-socket	HC1-SS-K	●					●				
	2-pole	HC2-socket	HC2-SS-K		●					●			
	3-pole	HC3-socket	HC3-SS-K		●	●				●			
	1/2/4-pole (common)	HC4-socket	HC4-SS-K	●	●		●	●	●	●	●	●	●
PC board	1-pole	HC1-socket for PC board	HC1-PS-K	●					●				
	2-pole	HC2-socket for PC board	HC2-PS-K		●					●			
	3-pole	HC3-socket for PC board	HC3-PS-K		●	●				●			
	1/2/4-pole (common)	HC4-socket for PC board	HC4-PS-K	●	●		●	●	●	●	●	●	●
Wrapping	1/2/4-pole (common)	HC4-wrapping socket	HC4-WS-K	●	●		●	●	●	●	●	●	●
		HC4-wrapping socket (spring)	HC4-WS	●	●		●	●	●	●	●	●	●

Notes: 1. Use the retainer that is shipped with the terminal socket.
2. UL/CSA approved type is standard (except for wrapping socket).

HC RELAY TERMINAL SOCKETS

1. Ordinary terminal sockets and terminal sockets for DIN rail assembly are available.
2. In the table below, the terminal socket suitable for each type of HC relay is indicated by a black dot.
3. UL/CSA approval is standard.
4. A hold-down clip is included in the package.



Ordinary terminal socket

The fixing method is the same as for sockets.

HC/HL-LEAF-SPRING-MK



Terminal sockets for DIN rail assembly

The fixing method is the same as for the HC DIN rail terminal sockets and the HL DIN terminal sockets.

HC/HL-LEAF-SPRING-K

TERMINAL SOCKET SELECTOR CHART

Type	No. of pole	Item	Part No.	Packing quantity		Applicable HC relay (Plug-in type)									
						Standard/Bifurcated contact (DC)					Amber				Keep relay
				Carton	Case	1 Form C	2 Form C	3 Form C	4 Form C	4 Form C (twin)	1 Form C	2 Form C	4 Form C	4 Form C (twin)	
For DIN rail	2-pole	HC2-slim type DIN terminal socket	HC2-SFD-S	20 pcs.	100 pcs.		●					●			
	2-pole	HC2-DIN	HC2-SFD-K	10 pcs.	100 pcs.		●					●			
	3-pole	HC3-DIN	HC3-SFD-K	5 pcs.	50 pcs.		●	●				●			
	1/2/4-pole (common)	HC4-DIN high terminal socket	HC4-SFD-K	10 pcs.	100 pcs.	●	●		●	●	●	●	●	●	●
	1/2/4-pole (common)	HC3 vertical terminal socket	HC4-TSF-K	20 pcs.	200 pcs.	●	●		●	●	●	●	●	●	●
For general	2-pole	HC2-terminal socket	HC2-SF-K	10 pcs.	100 pcs.		●					●			
	3-pole	HC3-high terminal socket	HC3-HSF-K	5 pcs.	50 pcs.		●	●				●			
	1/2/4-pole (common)	HC-high terminal socket	HC4-HSF-K	5 pcs.	50 pcs.	●	●		●	●	●	●	●	●	●

- Notes: 1. Use the retainer that is shipped with the terminal socket.
 2. UL/CSA approved type is standard (except for HC4-TSF-K).
 3. In order to prevent breakage and disfiguring, the screw tightening torque for the terminal socket should be within the range of 0.49 to 0.69 N·m {5 to 7kgf·cm}.

HC RELAY ACCESSORIES

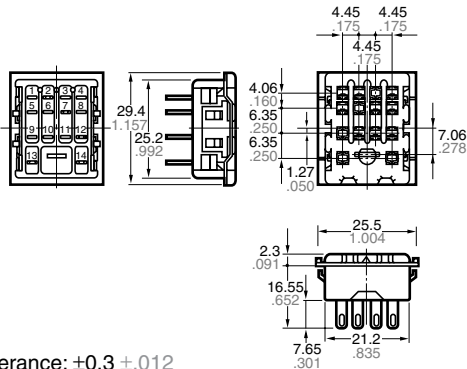
DIMENSIONS (Unit: mm inch)

1. Plug-in type sockets

HC1-Socket (HC1-SS-K)

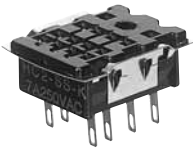


External dimensions

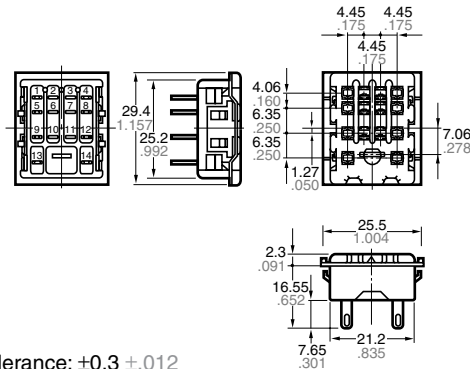


General tolerance: $\pm 0.3 \pm .012$

HC2-Socket (HC2-SS-K)



External dimensions

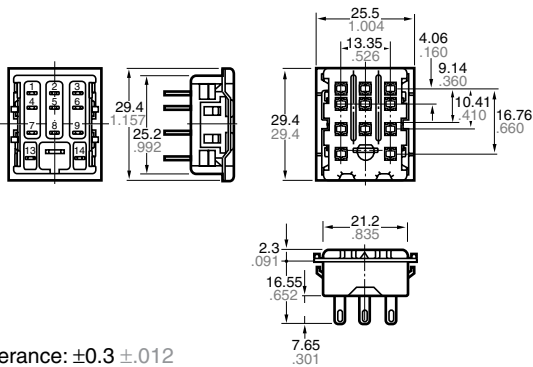


General tolerance: $\pm 0.3 \pm .012$

HC3-Socket (HC3-SS-K)

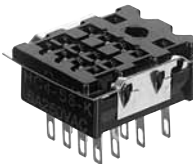


External dimensions

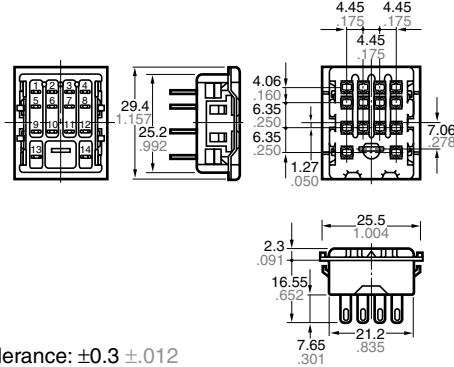


General tolerance: $\pm 0.3 \pm .012$

HC4-Socket (HC4-SS-K)

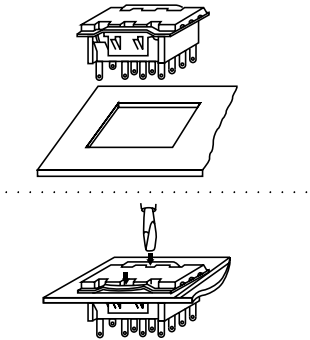


External dimensions

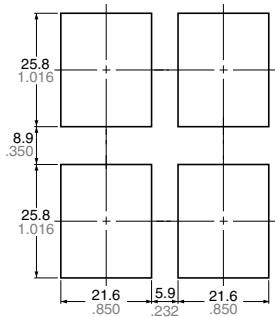


General tolerance: $\pm 0.3 \pm .012$

Mounting hole diagram



Side-by-side installation



General tolerance: $\pm 0.2 \pm .008$

- Notes: 1. Applicable chassis board thickness is 1.0 to 2.0 mm.
2. Installation is easy by inserting the socket from the top into the holes and by depressing the two down arrows on the retention fitting from the front.

With a relay mounted (HC2-SS-K)



Hold-down clip is packaged with the socket.

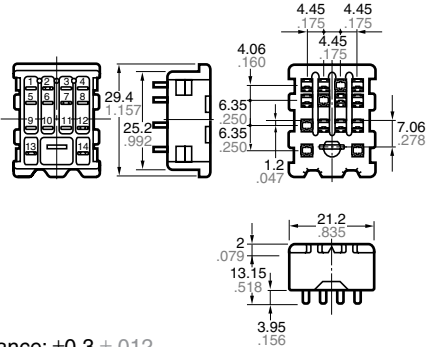
HC RELAY ACCESSORIES

2. PC board type sockets

HC1- PC board type socket (HC1-PS-K)



External dimensions

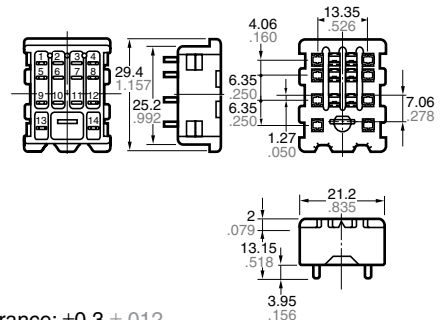


General tolerance: $\pm 0.3 \pm 0.012$

HC2- PC board type socket (HC2-PS-K)



External dimensions

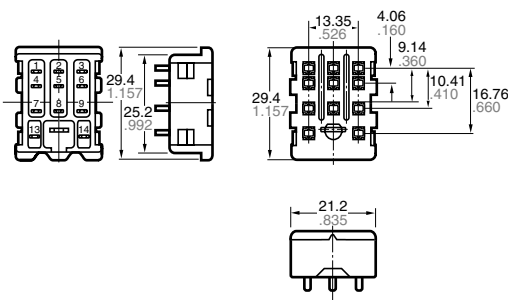


General tolerance: $\pm 0.3 \pm 0.012$

HC3- PC board type socket (HC3-PS-K)



External dimensions

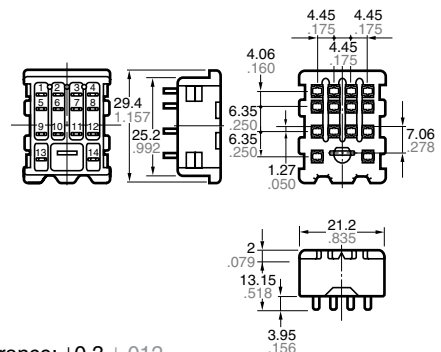


General tolerance: $\pm 0.3 \pm 0.012$

HC4- PC board type socket (HC4-PS-K)

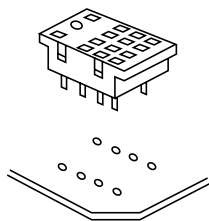


External dimensions



General tolerance: $\pm 0.3 \pm 0.012$

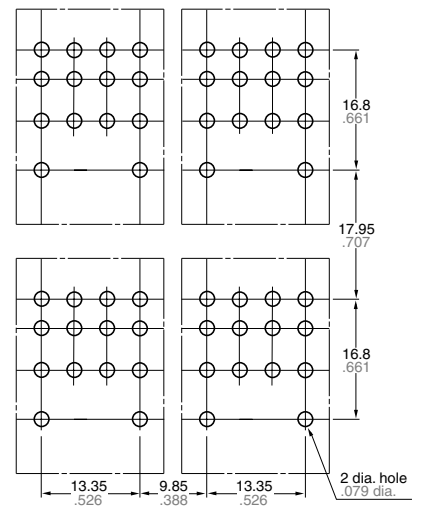
PC board pattern (Bottom view)



With a relay mounted

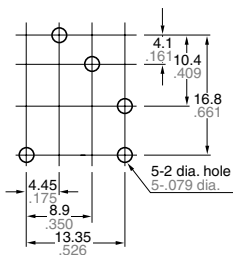


Side-by-side installation

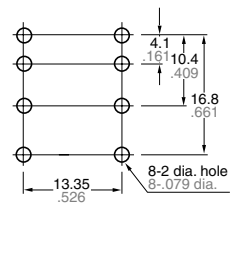


Hold-down clip is packaged with the socket.

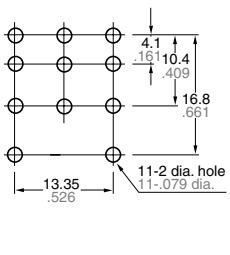
1 Form C



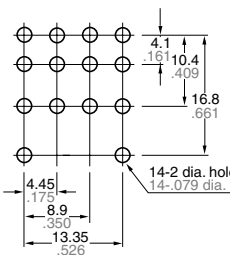
2 Form C



3 Form C



4 Form C

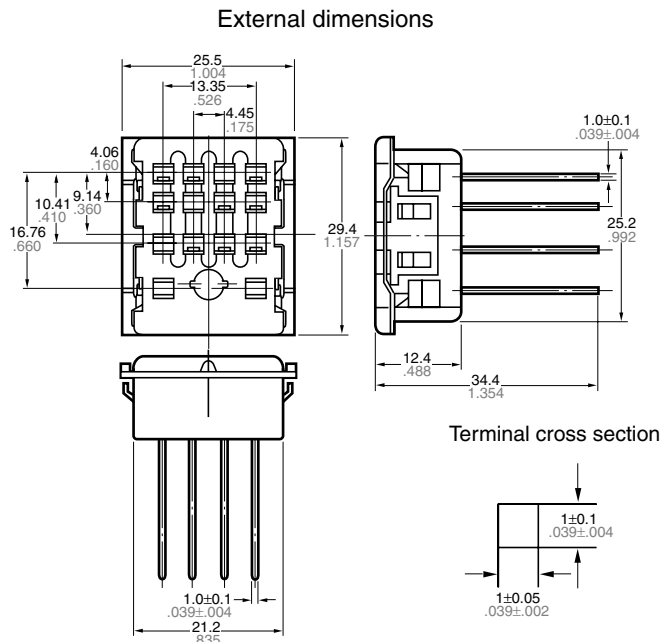


General tolerance: $\pm 0.2 \pm 0.008$

HC RELAY ACCESSORIES

3. Wrapping type sockets

Standard wrapping type sockets
(HC4-WS-K)



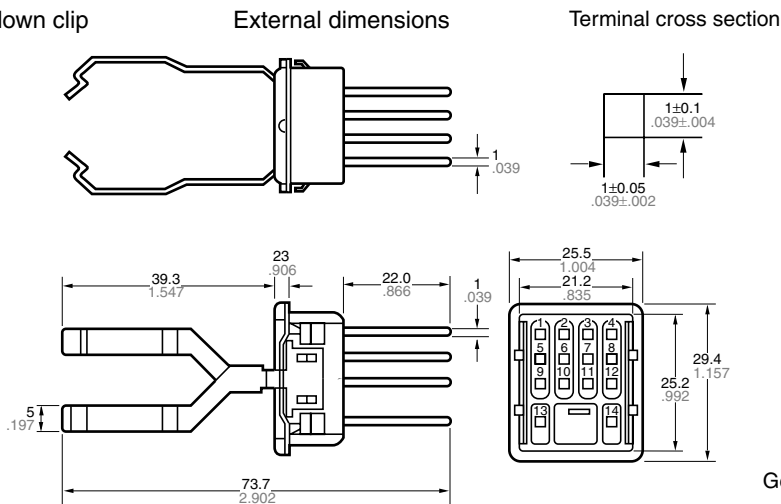
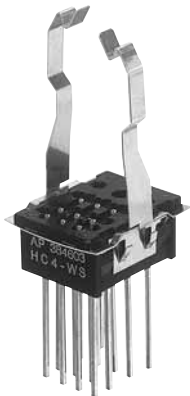
Hold-down clip
(Hold-down clip is packaged with the socket)



General tolerance: $\pm 0.3 \pm 0.012$

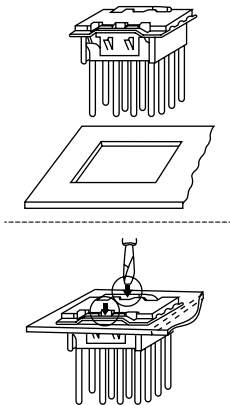
Note: The external and mounting dimensions are the same for 1-pole (HC1-WS-K), 2-pole (HC2-WS-K), and 3-pole (HC3-WS-K) types.
Only the number of terminals varies.

Wrapping type sockets with hold-down clip
(HC4-WS)

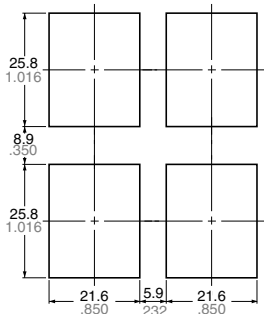


General tolerance: $\pm 0.7 \pm 0.028$

Mounting hole diagram



Side-by-side installation

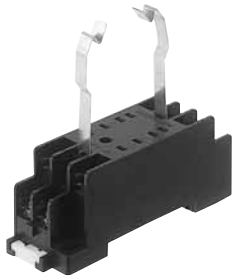


General tolerance: $\pm 0.2 \pm 0.008$

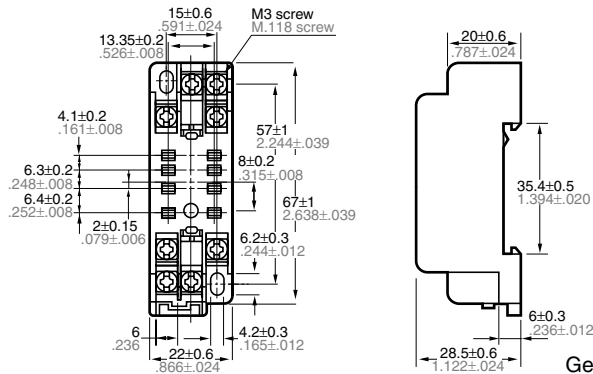
- Notes:
1. Applicable chassis board thickness is 1.0 to 2.0 mm.
 2. Installation is easy by inserting the socket from the top into the holes and by depressing the two down arrows on the retention fitting from the front.

4. Terminal sockets for DIN rail assembly

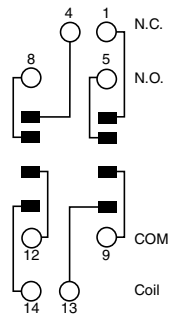
HC2-Slim type terminal sockets for DIN rail assembly (HC2-SFD-S)



External dimensions

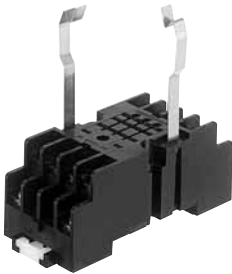


Schematic

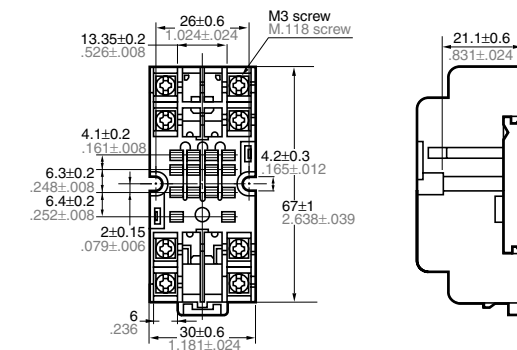


General tolerance: $\pm 0.5 \pm .020$

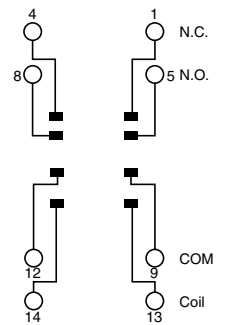
HC2-high terminal socket for DIN rail assembly (HC2-SFD-K)



External dimensions

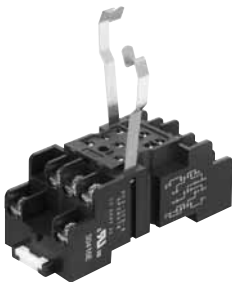


Schematic

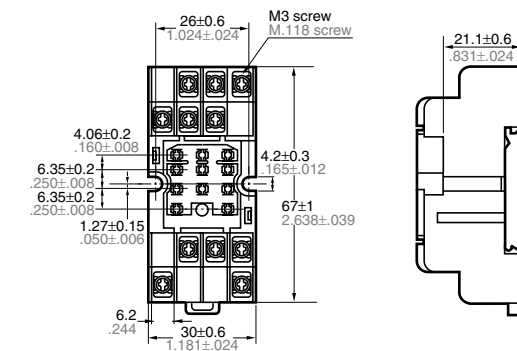


General tolerance: $\pm 0.5 \pm .020$

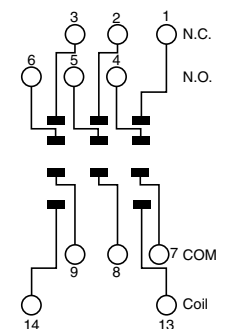
HC3-high terminal socket for DIN rail assembly (HC3-SFD-K)



External dimensions

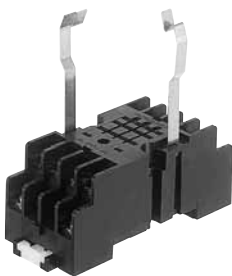


Schematic

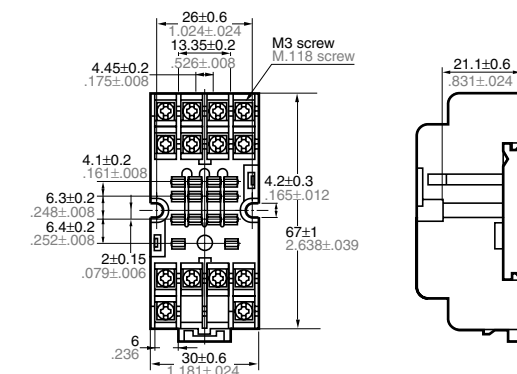


General tolerance: $\pm 0.5 \pm .020$

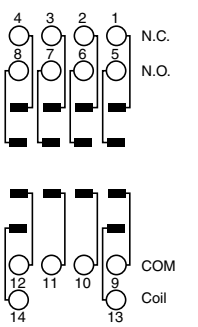
HC4-high terminal socket for DIN rail assembly (HC4-SFD-K)



External dimensions



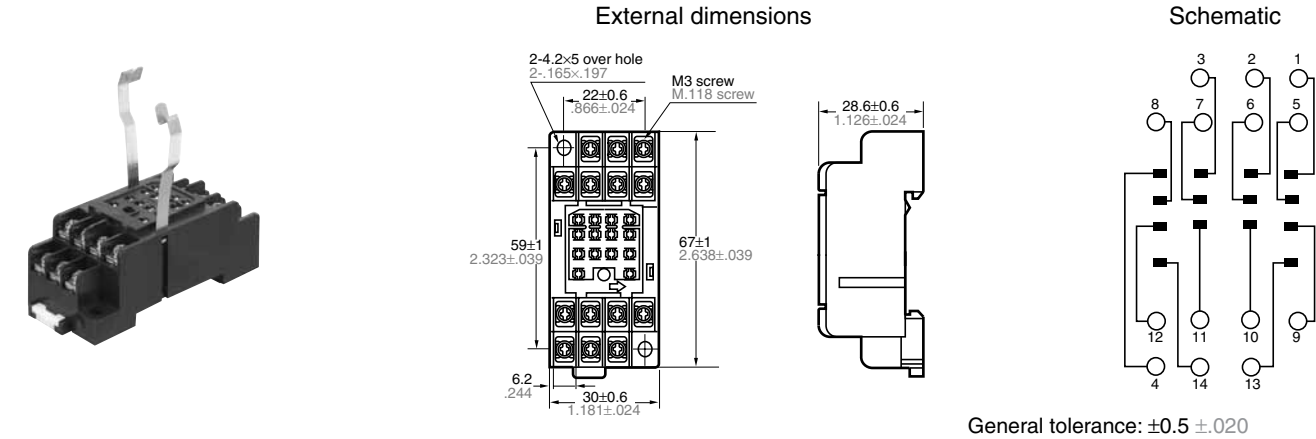
Schematic



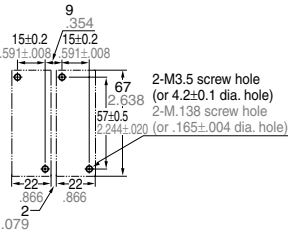
General tolerance: $\pm 0.5 \pm .020$

HC RELAY ACCESSORIES

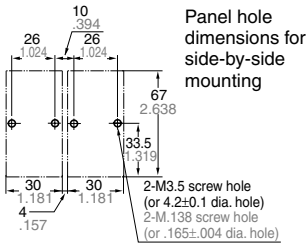
HC vertical type terminal socket (HC4-TSF-K)



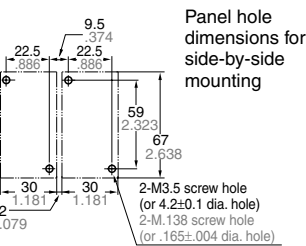
Mounting hole diagram
HC2-Slim type



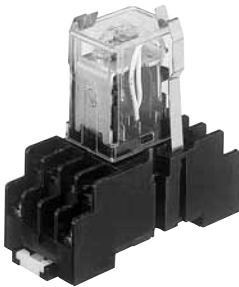
HC2, HC3 and HC4



HC vertical type



With a relay mounted (HC4-SFD-K)

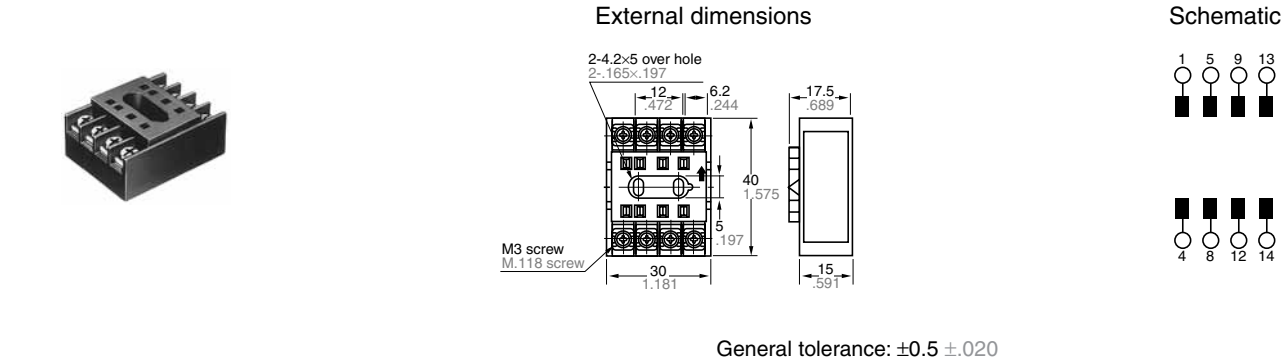


General tolerance: ±0.1 ±.004

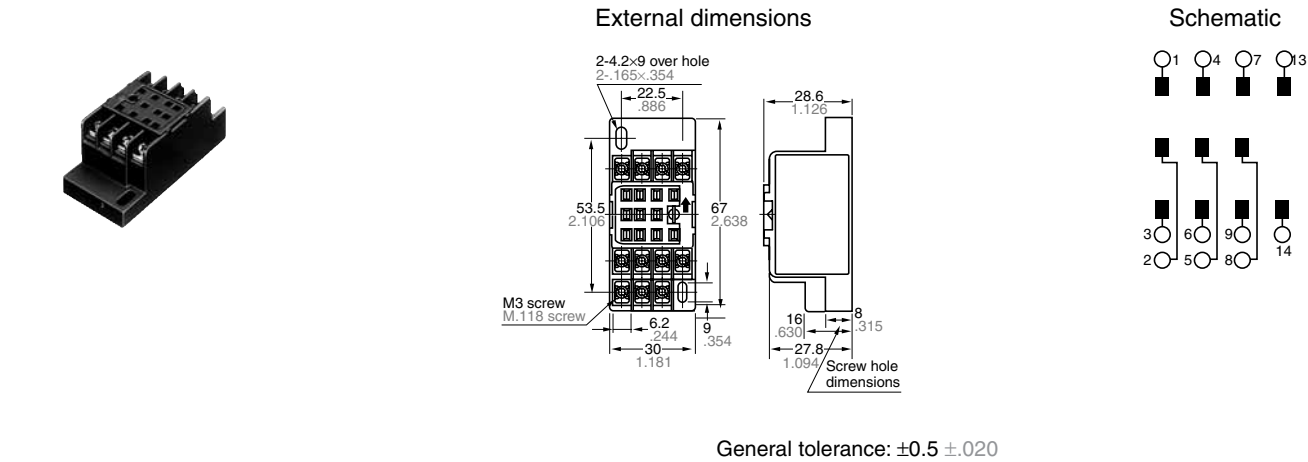
Hold-down clip is packaged with the terminal socket.

5. Ordinary terminal sockets

HC2-terminal socket (HC2-SF-K for HC2)

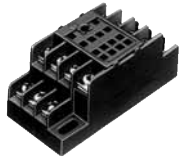


HC3-high terminal socket (HC3-HSF-K) suitable for both HC2 and HC3

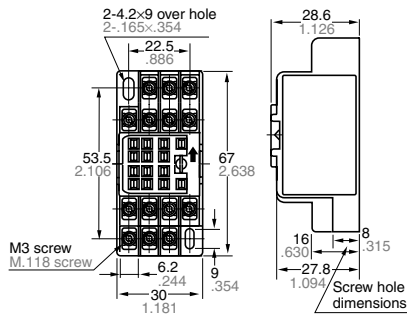


HC RELAY ACCESSORIES

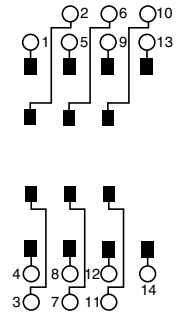
HC4-high terminal socket (HC4-HSF-K) suitable for HC 1, 2 and 4



External dimensions

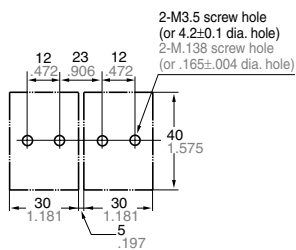


Schematic



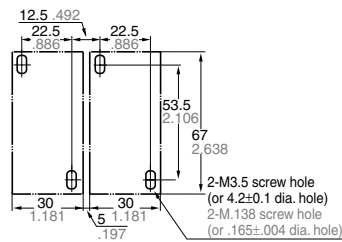
General tolerance: $\pm 0.5 \pm .020$

Mounting hole diagram
HC2-SF-K



Panel hole dimensions for
side-by-side mounting

HC3-HSF-K and HC4-HSF-K



Panel hole dimensions for
side-by-side mounting

With a relay mounted (HC2-SF-K)

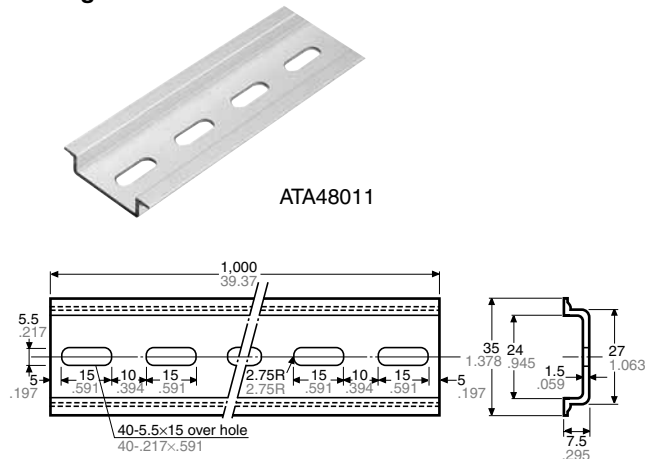


Hold-down clip is packaged with the terminal socket.

General tolerance: $\pm 0.1 \pm .004$

DIMENSIONS (Unit: mm inch)

Mounting rail

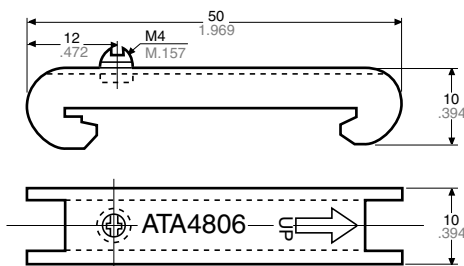


ATA48011

Fastening plate



ATA4806



Compliance with RoHS Directive

MOUNTING METHOD

1. DIN terminal socket mounting

1. Enables 'one-touch' attachment to, and easy removal from, mounting rail (35 mm DIN46277 standard rail) on device.

2. By doing away with installation tasks, large cost savings are possible.

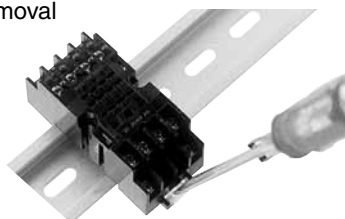
3. As well as HC relays, PDX timers, and CDX and CDF time relays can be attached.

Attachment

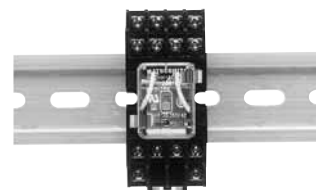


By applying pressure into the rail, secure attachment is possible.

Removal



Extraction is easy when a slot head screwdriver or similar tool is used to pull outward the protrusion used for removal.



2. Wire-pressed terminals

When using wire-pressed terminals, please use the parts listed below or parts made with similar specifications.

• Applicable wire-pressed terminals

Company name	Type	Part number	
		Fork type	Round type
NICHIFU Co., Ltd.		1.25Y-3N, 1.25Y-3S	1.25-3, 1.25-3S
Nippon Tanshi Co., Ltd.		VR1.25-3, VD1.25-3	1.25-3, 1.25-3TA
J.S.T. Mfg Co., Ltd.		1.25-3X, 1.25-3.7X	R1.25-3, R1.25-M3
Tyco Electronics AMP K.K.		42413-1, 41071-A	42065-1, 60735-1