

Miniature control relays

HH52, HH53, HH54 Series

■ Features

- The products have obtained the CCC certification and can satisfy the market demands.
- Standard products have been approved by UL, CSA and TÜV.
- The series products are equipped with an operating indicator (LED), ensuring a clear glance of work status.
- The products are environmentally friendly and conformed to regulations on pollution control of electronic information products.



■ Type number nomenclature

Basic type		HH	54	P	-	L	C	DC 24V	Rated coil voltage	
HH	Miniature control relay								DC24V	24V DC coil
Contact arrangement		52	53	54					DC48V	48V DC coil
52	2PDT								AC110V	110V AC coil
53	3PDT								AC220V	220V AC coil
54	4PDT								C	CCC certified product
P	Plug-in								L	With an operating indicator

■ Types

Contact arrangement	Rated thermal current (A)	Operating indicator	Rated coil voltage *1		Type	Applicable sockets
			AC coil	DC coil		
2PDT	5	Not equipped	AC110V	DC24V	HH52P-C	TP58X1-C
		Equipped	AC220V	DC48V	HH52P-LC	TP58X1-EC
3PDT	5	Not equipped			HH53P-C	TP511X1-C
		Equipped			HH53P-LC	TP511X1-EC
4PDT	3	Not equipped			HH54P-C	TP514X1-C
		Equipped			HH54P-LC	TP514X1-EC

*1 Please consult our company for the voltage specifications of other coils not mentioned in the above table

■ Specifications

Item		Specifications
Rated insulation voltage		250V
Operating voltage	AC	80% of the rated voltage (20°C)
	DC	75% of the rated voltage (20°C)
Reset voltage	AC	30% of the rated voltage (20°C)
	DC	10% of the rated voltage (20°C)
Maximum voltage persistently applied		110% of the rated voltage
Range of operating temperature		-25 to +60°C When 100% rated voltage is applied, no condensation or icing is observed.
Dielectric strength	The coil contacts and c contacts are mutual voltage resistant.	
	Among the contact clearance	AC1000V, 1 minute
	Among the socket terminal	AC2000V, 1 minute
Insulation resistance		Detected with a DC500V M meter; must be above 100MΩ
Operating time		20ms or less
Reset time		20ms or less
Vibration	Malfunction	10 to 55 Hz, double amplitude 1mm
	Durability	10 to 55 Hz, double amplitude 1mm 2 hours for each of X, Y and Z direction, 6 hours in all
Shock	Malfunction	200m/s ²
	Durability	1000m/s ² , 3 times for each of X,Y and Z direction, 18 times in all.
Durability	Mechanical	AC ratings: 50 million operations DC ratings: 100 million operations
	Electrical	Please refer to table below
Contact resistance		50mΩ or less (Before use)
Minimum applicable load (reference value) *		5V, 1mA
Mass		HH52P-LC: Approx. 32g HH53P-LC: Approx. 33g HH54P-LC: Approx. 33g

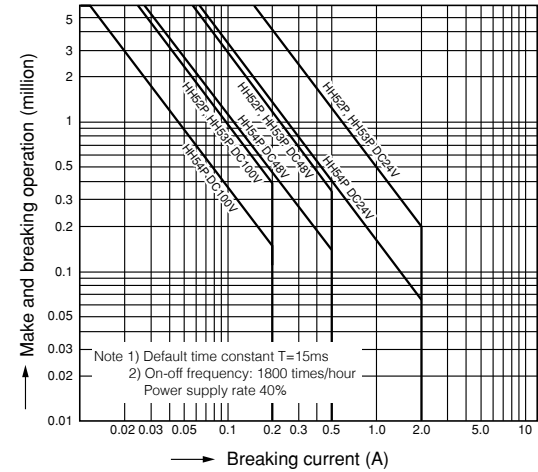
Note *: Reliability index $\lambda_{60}=0.1\times10^{-6}/\text{once}$
Referring to the minimum applicable load during the continual on-off when the relay is installed in a clean electrical cabinet. But this does not apply to the minimum applicable load during continual excitation work and etc.

■ Electrical durability

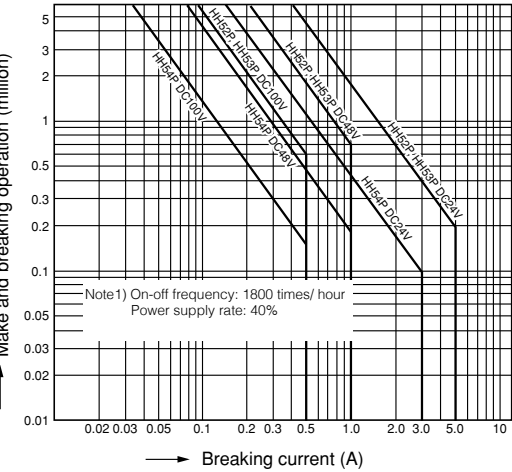
Voltage	Make		Break		Electrical life (million)	
	Current (A)	Power factor or time constant	Current (A)	Power factor or time constant	HH52P HH53P	HH54P
AC 200V (Ind. load)	10	$\cos\phi=0.7$	1	$\cos\phi=0.3$ to 0.4	0.4	0.08
	5		0.5		1	0.2
	3		0.3		1.7	0.33
	1		0.1		6	1.2
AC 100V (Ind. load)	10	$\cos\phi=0.7$	1	$\cos\phi=0.3$ to 0.4	0.7	0.13
	5		0.5		1.5	0.28
	3		0.3		2.8	0.5
	1		0.1		9	1.7
AC 200V (Res. load)	3	$\cos\phi=1$	3	$\cos\phi=1$	0.6	0.15
	1		1		2	0.5
	0.3		0.3		8	2
AC 100V (Res. load)	3	$\cos\phi=1$	3	$\cos\phi=1$	1	0.25
	1		1		3.4	0.9
	0.3		0.3		14	3.5
DC 100V (Ind. load)	0.2	T=15ms	0.2	T=15ms	0.4	0.15
	0.05		0.05		2.4	0.9
DC 24V (Ind. load)	1	T=15ms	1	T=15ms	0.5	0.15
	0.2		0.2		4	1.2
DC 100V (Res. load)	0.5	T=0ms	0.5	T=0ms	0.6	0.15
	0.1		0.1		5	1.2
DC 24V (Res. load)	3	T=0ms	3	T=0ms	0.4	0.1
	1		1		1.6	0.4
	0.2		0.2		14	3.5

■ Electrical durability curve

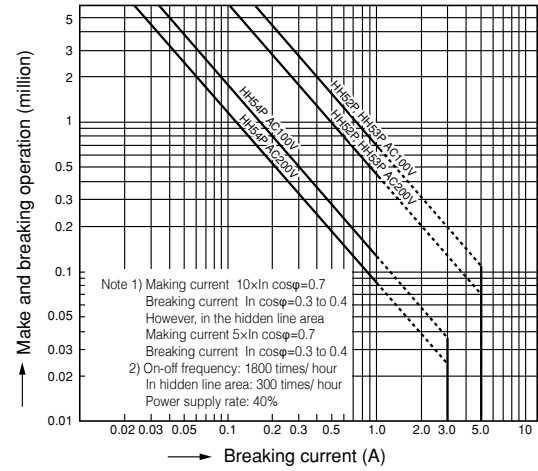
DC Ind. load



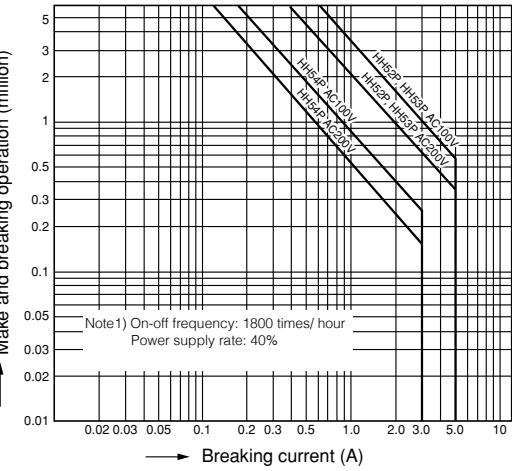
DC Res. load



AC Ind. load



AC Res. load



■ Coil characteristics

Rated voltage (V)	Coil voltage, frequency (AC)	Rated current (mA)		Coil resistance (Ω)	Coil inductance (H)		Power consumption	
		50Hz	60Hz		For armature dropout	For armature pickup	50Hz	60Hz
AC110	110V 50/60Hz	10.9	9.1	4,320	13.57	26.83	Approx. 1.2VA	Approx. 1.0VA
AC220	220V 50/60Hz	5.5	4.5	18,100	54.43	106.02		

Note: Coil nominal voltage is an item set to simplify the act of specifying an operation coil voltage by users when making orders. The voltage range of the above coils is also marked on the products.

Rated voltage (V)	Coil voltage	Rated current (mA)	Coil resistance (Ω)	Coil inductance (H)		Power consumption
				For armature dropout	For armature pickup	
DC24	DC24V	37	650	3.32	5.85	Approx. 0.9W
DC48	DC48V	18.8	2560	11.67	20.57	

■ Standard

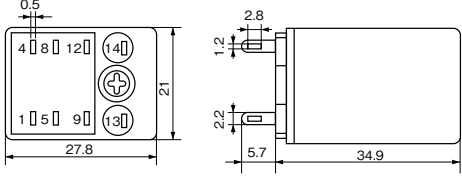
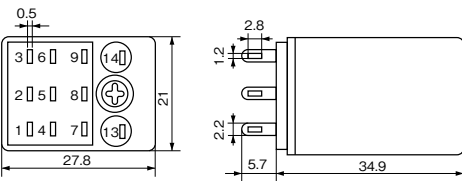
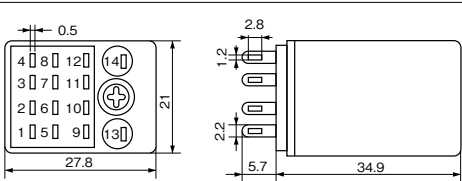
Type	EC instruction	Safety identification standard		CCC certification
	CE mark	UL	CSA	GB
				
HH52P-C, HH52P-LC HH53P-C, HH53P-LC HH54P-C, HH54P-LC	○	○	○	○

○: Standard products shall abide by the above standards as well as the obtained certifications.

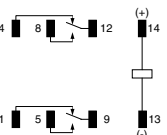
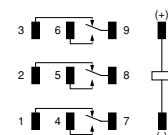
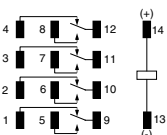
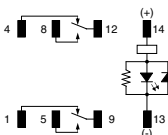
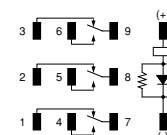
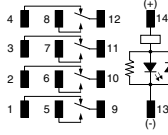
• CCC certification

Type	Application type	Rated operating voltage (V)	Rated thermal current (A)	Agreed heating current (A)	Electrical durability (x10 ⁴)
HH52P-C, HH53P-C HH52P-LC, HH53P-LC	AC-12 (Res. load)	220	5	5	20
	AC-15 (Ind. load)	220	1		
	DC-12 (Res. load)	110	0.5		
	DC-13 (Ind. load)	110	0.2		10
	AC-12 (Res. load)	240	5		20
	DC-12 (Res. load)	30	5		
HH54P-C HH54P-LC	AC-12 (Res. load)	220	3	3	10
	AC-15 (Ind. load)	220	0.3		20
	DC-12 (Res. load)	110	0.5		
	DC-13 (Ind. load)	110	0.2		7
	AC-12 (Res. load)	240	3		20
	DC-12 (Res. load)	30	3		

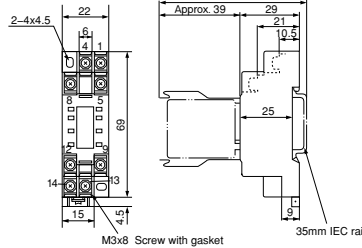
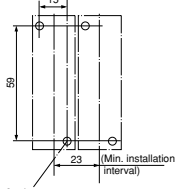
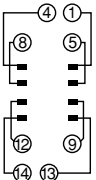
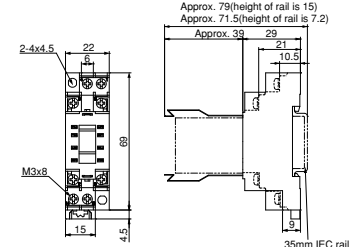
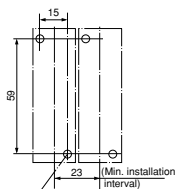
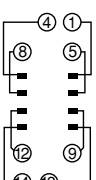
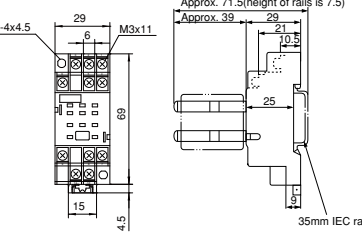
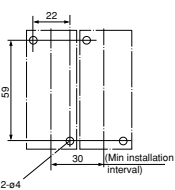
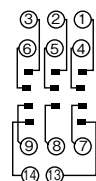
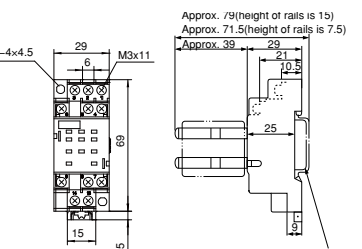
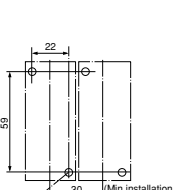
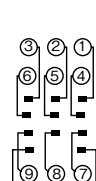
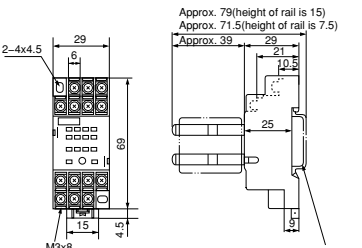
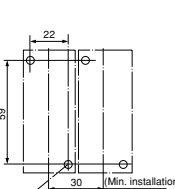
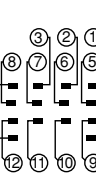
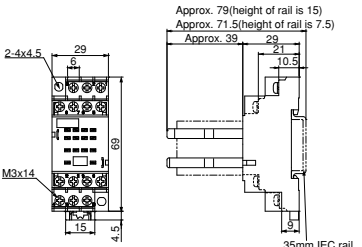
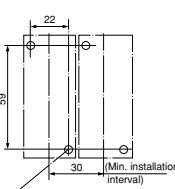
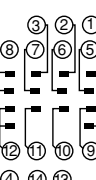
■ Dimensions, mm

Type	Appearance, mass	Dimensions, mm
HH52P-C HH52P-LC	 Approx. 32g	
HH53P-C HH53P-LC	 Approx. 33g	
HH54P-C HH54P-LC	 Approx. 33g	

■ Internal wirings

Standard			Equipped with an operating indicator		
HH52P-C	HH53P-C	HH54P-C	HH52P-LC	HH53P-LC	HH54P-LC
					

Sockets

Type	Appearance, mass	Applicable relay	Dimensions (mm)	Panel drilling (mm)	Wiring diagrams
TP58X1-C (For the wiring of screws used for the groove rail installation) Terminal screw M3 * Standard products have accompanied vibration resistant metal parts	 Approx. 32g (No.AF91-874)	HH52P	 Approx. 79(height of rail is 15) Approx. 71.5(height of rail is 7.5)	 2-ø4 (M3-M4 tap hole for screw installation)	
TP58X1-EC With finger safety protection (For the wiring of screws used for the groove rail installation) Terminal Screw M3 * Standard products have accompanied vibration resistant metal parts.	 Approx. 33g (No.KKD11-026)	HH52P	 Approx. 79(height of rail is 15) Approx. 71.5(height of rail is 7.2)	 2-ø4 (M3-M4 tap hole for screw installation)	
TP511X1-C (For the wiring of screws used for the groove rail installation) Terminal screw M3 * Standard products have accompanied vibration resistant metal parts	 Approx. 43g (No.KKD12-100)	HH53P	 Approx. 79(height of rails is 15) Approx. 71.5(height of rails is 7.5)	 2-ø4 (M3-M4 tap hole for screw installation)	
TP511X1-EC With finger safety protection (For the wiring of screws used for the groove rail installation) Terminal Screw M3 * Standard products have accompanied vibration resistant metal parts.	 Approx. 44g (No.KKD12-099)	HH53P	 Approx. 79(height of rails is 15) Approx. 71.5(height of rails is 7.5)	 2-ø4 (M3-M4 tap hole for screw installation)	
TP514X1-C (For the wiring of screws used for the groove rail installation) Terminal screw M3 * Standard products have accompanied vibration resistant metal parts	 Approx. 49g (No.AF91-872)	HH54P	 Approx. 79(height of rail is 15) Approx. 71.5(height of rail is 7.5)	 2-ø4 (M3-M4 tap hole for screw installation)	
TP514X1-EC With finger safety protection (For the wiring of screws used for the groove rail installation) Terminal Screw M3 * Standard products have accompanied vibration resistant metal parts.	 Approx. 50g (No.KKD11-027)	HH54P	 Approx. 79(height of rail is 15) Approx. 71.5(height of rail is 7.5)	 2-ø4 (M3-M4 tap hole for screw installation)	

Note: Precautions for socket use: You must use the accompanied vibration resistant metal parts.
 Otherwise, the vibration resistant and impact resistant properties of the relays will not meet the requirements sometimes.

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