



»» Features

- High voltage DC load control.
- High performance pre-charging relay for xEV vehicle.
- Complies with RoHS-Directive 2011/65/EU.

»» Type List

Terminal style	Contact form	Designation (provided with)	
		Flux tight	Flanged cover (Flux tight)
Plug-in terminal	1A (SPDM)	HV010-1AH-C	HV010-1AH-C1
PCB terminal		HV010P-1AH-C	-----

»» Ordering Information

HV010 - 1A H - C
 1 2 3 4 5 6

- | | |
|---|---|
| 1. HV010 -- Basic series designation | 4. H -- Contact material Ag alloy |
| 2. Blank -- Plug-in terminal
P -- PCB terminal | 5. C -- Flux tight
C1 -- Flanged cover (Flux tight) |
| 3. 1A -- Form A, single-pole, double-make (SPDM) | 6. <input type="checkbox"/> -- Coil voltage (please refer to the coil rating data for the availability) |

»» Contact Rating

Rated load (Resistive)	10A 400VDC
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»» Coil Rating (DC)

Rated voltage (V)	Rated current ±10 % at 23°C (mA)	Coil resistance ±10 % at 23°C (Ω)	Pick up voltage (Max.) at 23°C	Drop out voltage (Min.) at 23°C	Max. energize voltage at 23°C ⁽¹⁾	Max. coil energize duration	Power consumption at rated voltage
12	266	45	75 % of rated voltage	5 % of rated voltage	116 % of rated voltage	180 sec.	approx. 3.2W
24	133	180					

Notes : (1) Without continuous contact current.
 (2) Coil terminal with polarity sensitivity, please follow the layout instruction.

»» Specification

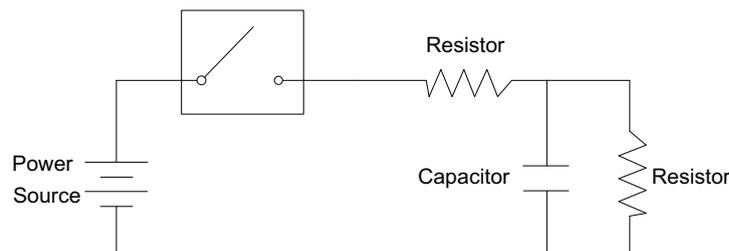
Contact material	Ag alloy	
Voltage drop ⁽¹⁾	Typ. 40mV at 10A	
Operate time ⁽¹⁾	30ms Max.	
Release time ⁽¹⁾	15ms Max.	
Insulation resistance ⁽¹⁾	100MΩ Min. (DC 500V)	
Dielectric strength ⁽¹⁾	Between open contact	: AC 2000V, 50/60Hz 1 min.
	Between contact and coil	: AC 2500V, 50/60Hz 1 min.
Vibration resistance	Operating extremes	10~500Hz, 5.0G
	Damage limits	10~500Hz, 5.0G
Shock resistance	Operating extremes	10G
	Damage limits	100G

HV010

Life expectancy	Mechanical	500,000 ops. (frequency 9,000 ops./hr)	
	Electrical	Rated switching capacity (Resistive)	10A 400VDC: 50,000 ops. (frequency 180 ops./hr) Inrush 20A, break 3A: 100,000 ops. ⁽¹⁴⁾ (frequency On 0.2s/Off 1.8s)
		Overload switching capacity	12A 400VDC: 50 ops.
Operating ambient temperature	-40~+85°C (no freezing)		
Weight	Approx. 65g, 70g (flanged cover)		

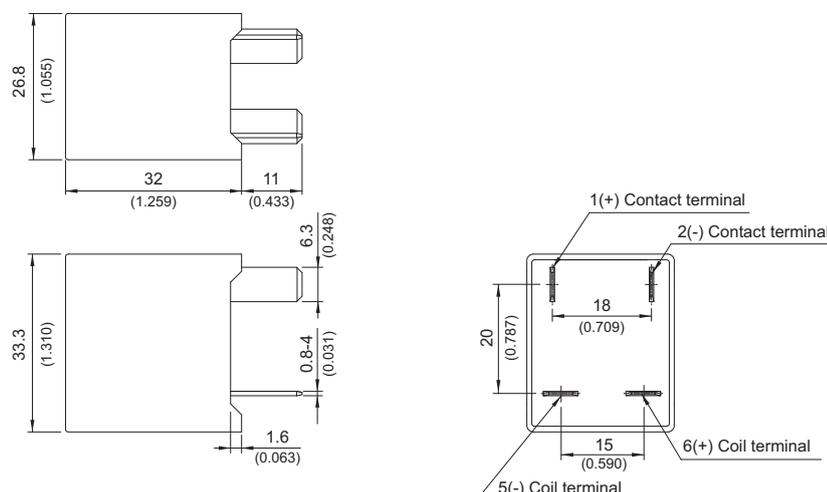
- Notes :
- (1) Initial value. Operate and release time excluding contact bounce.
 - (2) Coil and contact sides with polarities (+) and (-).
 - (3) Unless otherwise specified, all tests are under room temperature and humidity.
 - (4) Consider the heat of PCB is necessary, please check the actual condition of PCB.
 - (5) Applying no diode to this relay. The life expectancy will be lower when a diode is used. To use a varistor (ZNR) could absorb the coil surge of relay that is recommended.
 - (6) Do not use the relay exceeding the coil rating, contact rating and life expectancy, or this may cause the risk of overheating.
 - (7) To assure optimum performance, avoid the relay from dropping, hitting, or other unnecessary shocks.
 - (8) Take care to avoid cross connections as they may cause malfunctions or overheating.
 - (9) To avoid mounting the relay in strong magnetic fields (near a transformer or magnet) or close to an object that radiates heat.
 - (10) Do not switch the contacts without any load as the contact resistance may become increased rapidly.
 - (11) Use suitable harnesses and bus bars according to the current as below:
10A type : Min. 2 mm²
 - (12) To avoid unexpected damage, when tightening a screw, use no exceeding specified torque range as below:
M4 screw : 2.5 ~ 3 N.m
 - (13) Please contact Song Chuan for the detailed information.
 - (14) Pre-charging simulation circuit, please refer to figure 1.
Ex.: Inrush 20A, break 3A ; On 0.2s / Off 1.8s.

◆ Figure 1

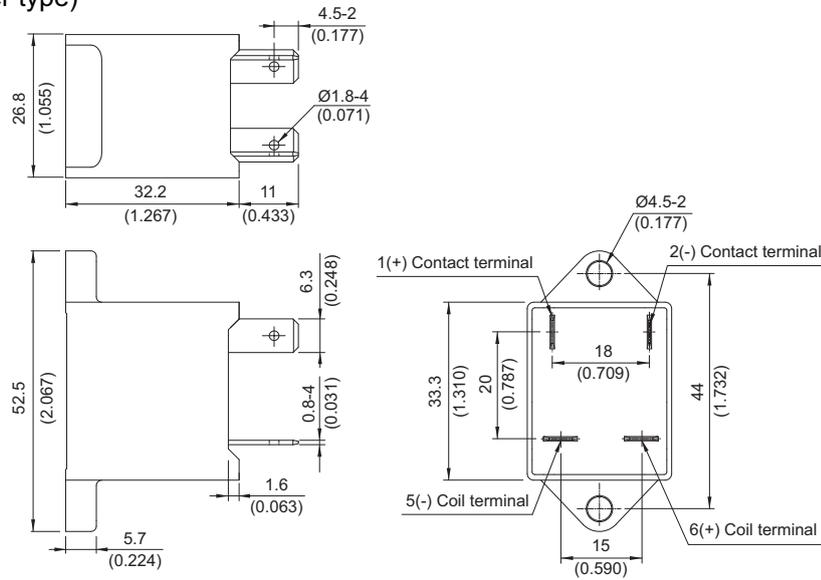


»» Outline Dimensions

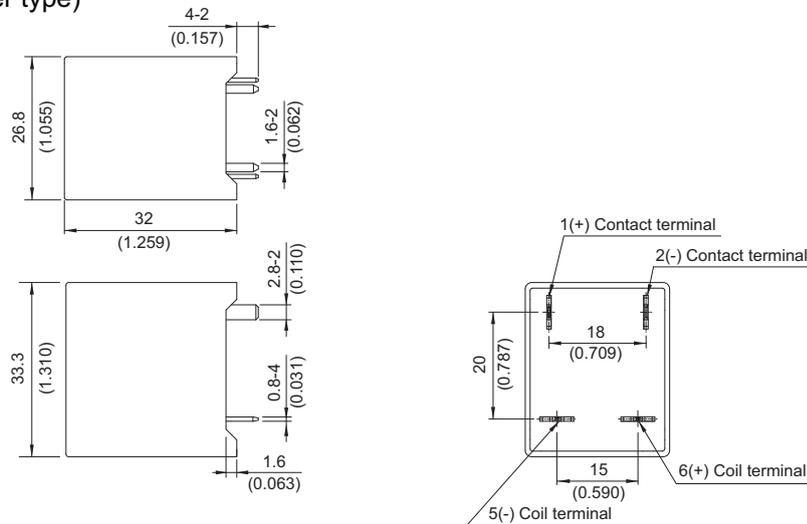
◆ HV010 (-C cover type)



◆ HV010 (-C1 cover type)

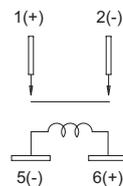


◆ HV010P (-C cover type)



TOLERANCE:
 LESS THAN: 1(0.039) $\pm 0.1(0.004)$
 5(0.197) $\pm 0.3(0.012)$
 20(0.787) $\pm 0.5(0.020)$
 MORE THAN: 20(0.787) $\pm 1(0.039)$

»» Wiring Diagram (Bottom view)



Load sides and coil terminals are with polarities (+) and (-).

»» PC Board Layout (Bottom view)

◆ HV010P

