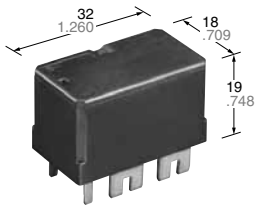
Automotive Relay for Failsafe Circuits in High Output Motors (EPS)

CW RELAYS

<Protective construction>
Sealed



(Unit: mm inch)

RoHS compliant

FEATURES

- **Ideal relay for high output 3-phase motors**
- **High current cutoff**
- **High carrying current and high heat resistance**

TYPICAL APPLICATIONS

- **3-phase motor EPS unit, etc. (for failsafe circuit)**

ORDERING INFORMATION

ACW **2** ☐

Contact arrangement
2: 2 Form A

Rated coil voltage (DC)
12: 12 V

TYPES

Contact arrangement	Rated coil voltage	Part No.	Packing	
			Carton	Case
2 Form A	12 V DC	ACW212	40 pcs.	160 pcs.

RATING

1. Coil data

Rated coil voltage	Operate (Set) voltage (at 20°C 68°F) (Initial)	Release (Reset) voltage (at 20°C 68°F) (Initial)	Rated operating current [±10%] (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Rated operating power (at 20°C 68°F)	Usable voltage range
12V DC	Max. 6.2 V DC	Min. 0.5 V DC	117 mA	103Ω	1.4 W	10 to 16V DC

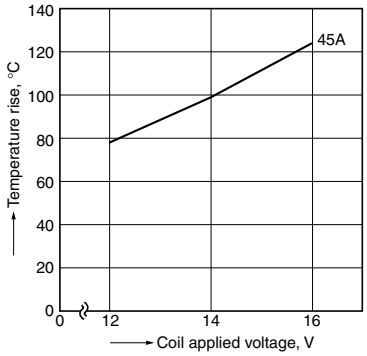
2. Specifications

Item		Specifications
Contact data	Contact arrangement	2 Form A
	Contact resistance (initial)	Typ. 1.2 mΩ (By voltage drop 1A 6V DC)
	Contact material	Ag alloy
	Max. carrying current*1	120 A 14V DC for 5 seconds (Coil applied voltage 14V DC, at 20°C 68°F) 70 A 14V DC for 1 minute (Coil applied voltage 14V DC, at 85°C 185°F) 45 A 14V DC for continuous (Coil applied voltage 14V DC, at 85°C 185°F)
	Min. switching load (resistive)*2	1 A 14V DC (at 20°C 68°F)
Insulated resistance (initial)		Min. 100 MΩ (at 500V DC, Measurement at same location as “Dielectric strength” section.)
Dielectric strength (initial)	Between open contacts	500 Vrms for 1 min. (Detection current: 10mA)
	Between contacts and coil	500 Vrms for 1 min. (Detection current: 10mA)
Time characteristics (initial)	Operate (Set) time (at Rated voltage)	Max. 20ms (at 20°C 68°F, without bounce time)
	Release (Reset) time (at Rated voltage)	Max. 20ms (at 20°C 68°F) (without diode)
Shock resistance	Functional	Min. 200 m/s² {approx. 20G} (Half-wave pulse of sine wave: 11ms; detection time: 10μs) (12 V DC applied to the coil, at 20°C 68°F)
	Destructive	Min. 1,000 m/s² {approx. 100G} (Half-wave pulse of sine wave: 6ms)
Vibration resistance	Functional	10 to 500 Hz, Min. 44.1 m/s² {approx. 4.5G} (Detection time: 10μs) (12 V DC applied to the coil, at 20°C 68°F)
	Destructive	10 to 500 Hz, Min. 44.1 m/s² {approx. 4.5G}, Time of vibration for each direction; X, Y, Z direction: 4 hours
Expected life	Mechanical	Min. 2×10^5 (at 60 cpm)
	Electrical (at cut off only)	200 A 14V DC resistive load, Min. 3 times (Without diode)
Conditions	Conditions for usage, transport and storage*3	Ambient temperature: –40 to +125°C –40 to +257°F, Humidity: 2 to 85% R.H. (Please avoid icing or condensation)
Weight		Approx. 26 g .92 oz

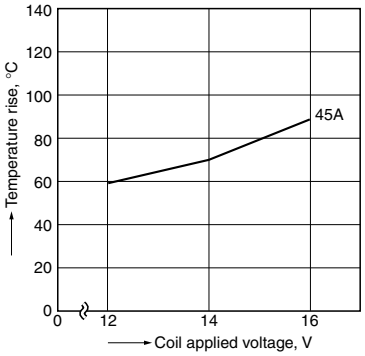
Notes: *1. Depends on connection conditions. Also, this does not guarantee repeated switching. We recommend that you confirm operation under actual conditions.
*2. This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.
*3. The upper operation ambient temperature limit is the maximum temperature that can satisfy the coil temperature rise value. For details, please refer to the “Automotive Relay Users Guide”.
Please inquire our sales representative if you will be using the relay in a high temperature atmosphere (110°C 230°F).

REFERENCE DATA

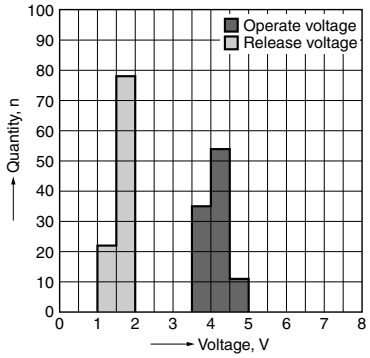
1.-(1) Coil temperature rise (25°C 77°F)
Sample: ACW212, 3pcs
Point measured: Inside the coil
Carrying current: 45A
Ambient temperature: 25°C 77°F



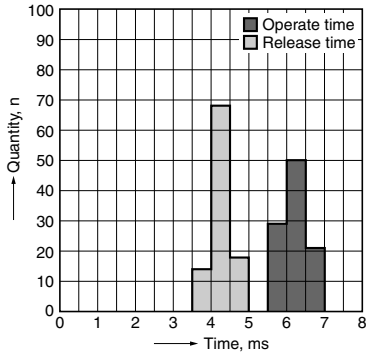
1.-(2) Coil temperature rise (85°C 185°F)
Sample: ACW212, 3pcs
Point measured: Inside the coil
Carrying current: 45A
Ambient temperature: 85°C 185°F



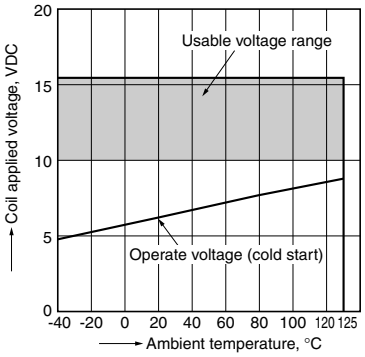
2. Distribution of operate (set) and release (reset) voltage
Sample: ACW212, 100pcs



3. Distribution of operate (set) and release (reset) time
Sample: ACW212, 100pcs.



4. Ambient temperature and usable voltage range

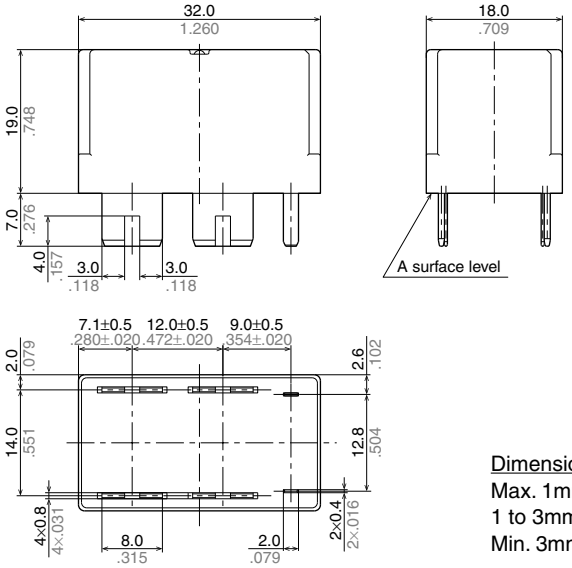


DIMENSIONS (mm inch)

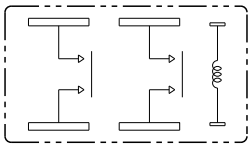
The CAD data of the products with a CAD mark can be downloaded from: http://industrial.panasonic.com/ac/e/

CAD

External dimensions



Schematic
(Bottom view)



Dimension:	Tolerance
Max. 1mm .039 inch:	±0.1 ±.004
1 to 3mm .039 to .118 inch:	±0.2 ±.008
Min. 3mm .118 inch:	±0.3 ±.012

* Intervals between terminals is measured at A surface level.

NOTES

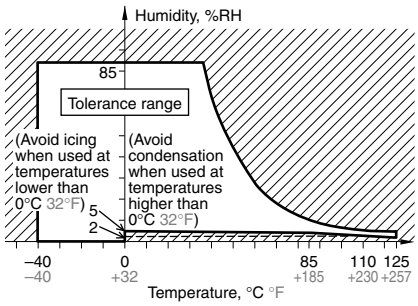
1. Mounting method

These relays are designed for mounting by welding. Soldering cannot be used for mounting.

2. Usage, transport and storage conditions

1) Ambient temperature, humidity, and air pressure during usage, transport, and storage of the relay:
(1) Temperature:
–40 to +125°C –40 to +257°F
(2) Humidity: 2 to 85% RH (Avoid icing and condensation.)
(3) Air pressure: 86 to 106 kPa
The humidity range varies with the temperature. Use within the range indicated in the graph below.

[Temperature and humidity range for usage, transport, and storage]



For general cautions for use, please refer to the "Automotive Relay Users Guide".

Please contact .....

Panasonic Corporation
Electromechanical Control Business Division
■ 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8506, Japan
industrial.panasonic.com/ac/e/

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