Customer：CODICO

Type：117L Series Relay

Revised : 2023.06.27
Issued : 2023.06.20

■ Features

- □ High temperature resistance relay for e-mobility charging application corresponding to different altitude.
- □ 500A switching capability according to IEC 62955.
- □ RoHS Compliant.

■ Type List

Terminal style	Contact form	Insulation system	Designation (provided with)
			Flux tight
PCB terminal	1A (SPNO)	F	117L-1AH1-F-C E20

■ Ordering Information

117L	-	1A	H	1	-	F	-	C	E20	□
1		2	3	4		5		6	7	8

1. 117L -- Basic series designation
2. 1A -- Single pole normally open
3. H -- Contact material Ag alloy
4. 1 -- Contact gap≧2.0mm
5. F -- Class F
6. C -- Flux tight
7. E20 -- Special feature code
8. □ -- Coil voltage (please refer to the coil rating data for the availability)

■ Contact Rating

Rated load (Resistive)	Making 10A, Carrying 66A, Breaking 10A / 240VAC, On 1s/ Off 9s, at 85°C, 50K ops. (1)
Rated load (Capacitive)	Inrush 230A 100us, Carrying 66A , Breaking 32A / 240VAC, On 1s/ Off 9s, 2,500 ops. (2) Inrush 230A 100us, Carrying 66A , Breaking 0A / 240VAC, On 1s/ Off 9s, 7,500 ops. (2)
Max. switching load	500A 240VAC, 3 ops. (3)
Max. carrying current	66A
Max. voltage	480VAC

Notes：(1) According to IEC 61851.

(2) According to IEC 62752 and IEC 62955.

(3) According to IEC 62955.

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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 (1)	Drop out voltage (Min.) at 23°C	Continuous voltage at 85°C (2)	Power consumption at rated / holding voltage
12	315.7	38	80 % of rated voltage	5 % of rated voltage	34~38 % of rated voltage	approx. 3.8W / 0.44W (2)
24	157.8	152				

Note：(1) To energize relay properly apply 100%~120% nominal coil voltage for 200ms.

(2) Coil holding voltage is 34~38% of nominal voltage after applying nominal voltage for 200ms.

■ Specification

Contact material	Ag alloy	
Contact resistance (1)	100mΩ Max. (1A/6VDC by 4-wire resistance measurement) 10 mΩ Max. (By voltage drop 20A)	
Operate time (1)	30ms Max.	
Release time (1)	20ms Max.	
Vibration resistance	Operating extremes	10~500Hz, 5.0G
	Damage limits	10~500Hz, 5.0G
Shock resistance	Operating extremes	10G
	Damage limits	100G
Short circuit (8)	I_p = 1.85kA and I^2t=4.5kA^2s at In≦ 32A according to IEC 62955.	
Life expectancy	Mechanical	300,000 ops. (frequency 9,000 ops./hr)
Operating ambient temperature	-40～+85°C (no freezing)	
Weight	Approx. 40 g	

Note：(1) Initial value. Operate and release time excluding contact bounce.

(2) Unless otherwise specified, all tests are under room temperature and humidity.

(3) Consider the heat of PCB is necessary, please check the actual condition of PCB.

(4) 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.

(5) Do not use the relay exceeding the coil rating, contact rating and life expectancy, or this may cause the risk of overheating.

(6) To assure optimum performance, avoid the relay from dropping, hitting, or other unnecessary shocks.

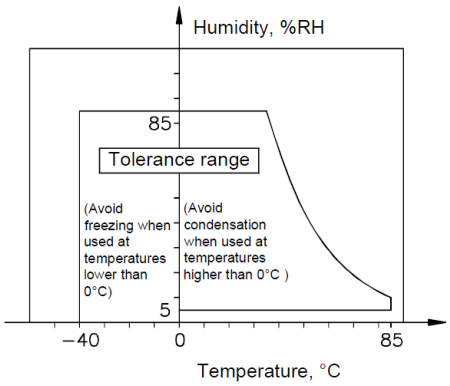
(7) Please pay attention to the phenomenon of freezing in the low temperature environment below 0°C. Please evaluate the actual use of the environment.

(8) For short circuit test, the test is with fuse and the phase angle is within ±30°.

(9) Usage, transport and storage conditions

- 1. Temperature: -40 ~ +85°C
- 2. Humidity: 5 to 85% R.H.

- 3. Pressure: 86 to 106 kPa
- Furthermore, the humidity range varies with the temperature. So, use relays within the range indicated in the graph below.



(The allowable temperature range differs for each relay.)

(10) Please contact Song Chuan for the detailed information.

■ Insulation Data

Insulation resistance (1)	1000MΩ Min. (DC 500V)	
Dielectric strength (1)	Between coil and contact	: AC 4000V, 50/60Hz 1 min.
	Between open contacts	: AC 1500V, 50/60Hz 1 min.
Insulation of IEC 61810-1		
Clearance / creepage distances	Between coil and contact	: Basic, ≧ 5.0mm / ≧ 5.0mm
	Between open contacts	: Basic, ≧ 2.0mm (2) / ≧ 4.8mm
Rated voltage	480V	
Rated impulse withstand voltage	4000V	
Pollution degree	2	
Overvoltage category	III	

Note : (1) Initial value.

(2) Per IEC 62955, the verification of clearance with the impulse withstand voltage is applied for the shown reduced clearance.

■ Safety Approval

Certified	UL / CUL	TUV
File No.	E88991	R 50436420

■ Safety Approval Rating

UL / CUL	TUV
20A 600VAC, Resistive, Carrying current 66A (1)	Making 20A, Carrying 66A, Breaking 20A / 600VAC T85 (1)

Note : (1) With 34%~38% modulation of nominal coil voltage.

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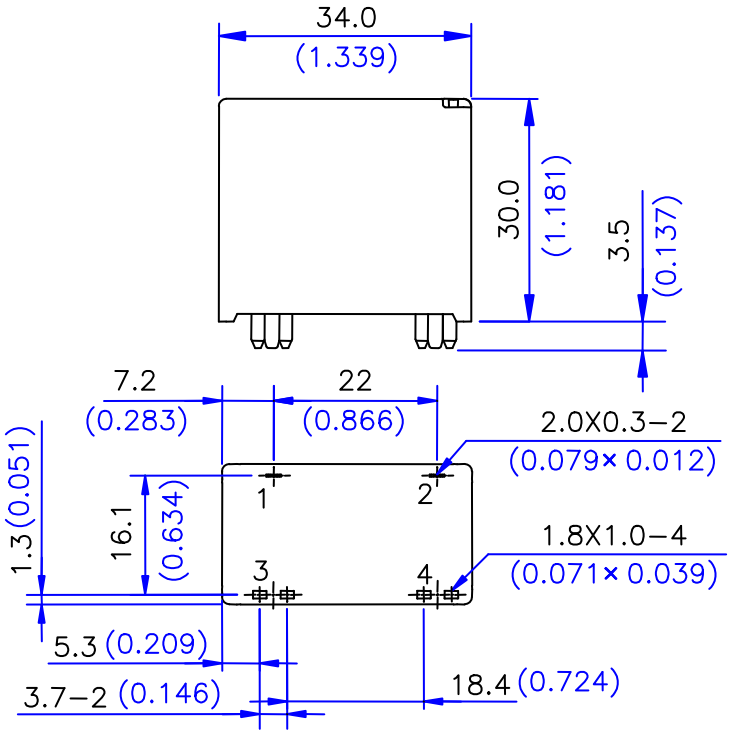
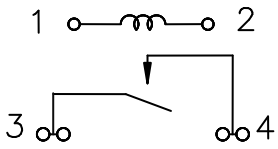
■ Outline Dimensions

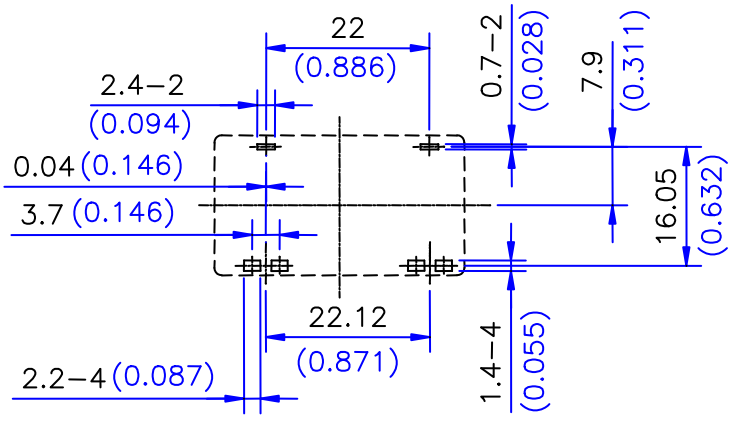


TOLERANCE:
LESS THAN: 1(0.039)±0.1(0.004)
5(0.197)±0.3(0.012)
20(0.787)±0.5(0.020)
MORE THAN:20(0.787)±1(0.039)

■ Wiring Diagram
(Bottom view)



■ PC Board Layout
(Bottom view)



TOLERANCE:±0.1(0.004)

Note : (1) The terminal dimension of the outline drawing is the size before soldering.
(It will become larger after soldering)