Panasonic
INDUSTRY

Automotive Relays

CN-L RELAYS

Product Catalog

IN Your Future

2024.9

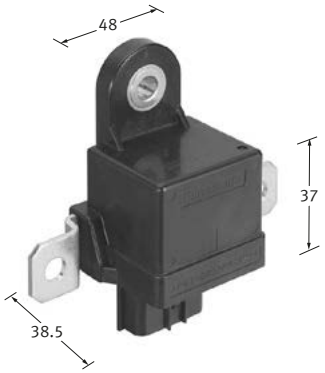
Automotive Relays

RoHS

CN-L RELAYS

Max. 150 A Continuous Carrying Current Latching Relay

[Protective construction] Sealed



(Unit: mm)

FEATURES

- Continuous carrying current possible at 150 A (at 85 ℃) or 80 A (at 125 ℃) .
- Maximum 1,500 A conductivity
- Can be used in environments with 125 ℃ ambient temperature.

TYPICAL APPLICATIONS

- Main relay application for protection of lithium batteries, etc.
- Battery disconnect application (safe circuit shutoff possible during malfunctions)
- Dual power supply switching application

ORDERING INFORMATION (PART NO.)

ACNL □ □ □

- Contact arrangement
  1: 1 Form A (Screw mounting)
- Contact capacity
  1: 150 A
- Rated coil voltage (DC)
  1: 12 V

TYPES

Contact arrangement	Rated coil voltage	Part No.	Packing
			Case
1 Form A (Latching type)	12 V DC	ACNL111	25 pcs.

RATING

■ Coil data

Rated coil voltage	Operate (Set) voltage* (at 20 ℃) (Initial)	Release (Reset) voltage* (at 20 ℃) (Initial)	Rated operating current [±10 %] (at 20 ℃)	Coil resistance [±10 %] (at 20 ℃)	Rated operating power (at 20 ℃)	Max. allowable voltage
12 V DC	Max. 7.0 V DC	Max. 7.0 V DC	2.5 A	4.8 Ω	30 W	16 V DC

*However, Impulse applied time is 100 ±50 ms (both Operate (Set) and Release (Reset) sides) and operation interval is 5 seconds or higher [Operate (Set) /Release (Reset) switching] .

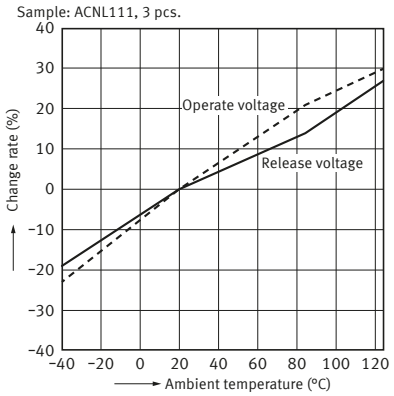
■ Specifications

Item		Specifications
Contact data	Contact arrangement	1 Form A (Latching type)
	Contact resistance (initial, after stabilization)	Max. 1.5 mΩ (typ. 0.4 mΩ) (By voltage drop 1 A 6 V DC) Max. 1.0 mΩ (By voltage drop 10 A 6 V DC)
	Contact material	Ag alloy
	Rated switching capacity (resistive)	150 A 14 V DC
	Continuous carrying current	150 A (at 85 ℃, Connection cable: 38 mm^2) 80 A (at 125 ℃, Connection cable: 38 mm^2)
	Max. carrying current*1	1,500 A for 0.5 s (at forward direction, at 20 ℃, Connection cable: 38 mm^2)
	Max. cut-off current	350 A 14 V DC (Min. 1,000 times in forward direction, switching frequency: 1 s ON, 9 s OFF, at 20 ℃, connection cable: 38 mm^2)
	Min. switching load (resistive) *2	1 A 14 V DC (at 20 ℃)
	Contact voltage drop (initial, after stabilization)	Max. 0.1 V (at 100 A, 12 V DC)
Insulated resistance (initial)		Min. 10 MΩ (at 500 V DC, Measurement at same location as “Dielectric strength” section.)
Dielectric strength (initial)	Between open contacts	500 V rms for 1 min (Detection current: 10 mA)
	Between contacts and coil	500 V rms for 1 min (Detection current: 10 mA)
Time characteristics (initial)	Operate (Set) time (at rated voltage)	Max. 10 ms (at 20 ℃, without contact bounce time)
	Release (Reset) time (at rated voltage)	Max. 10 ms (at 20 ℃)
Shock resistance	Functional	Min. 250 m/s^2 (N.O. side: closing) Min. 500 m/s^2 (N.O. side: opening, set/reset reversal) (Half-wave pulse of sine wave: 11 ms, detection time: 10 μs)
	Destructive	Min. 1,000 m/s^2 (Half-wave pulse of sine wave: 6 ms)
Vibration resistance	Functional	10 to 500 Hz, Min. 44.1 m/s^2 (Detection time: 10 μs)
	Destructive	10 to 500 Hz, Min. 44.1 m/s^2 (Time of vibration for each direction; X, Y direction: 2 hours, Z direction: 4 hours)
Expected life	Mechanical	Min. 3 x 10^5 (at 30 times/min)
	Electrical	150 A 14 V DC resistive load, Min. 3 × 10^4 (Switching frequency: 1 s ON, 9 s OFF, at 85 ℃, connection cable: 38 mm^2)
Conditions	Conditions for usage, transport and storage *3	Ambient temperature: −40 to +125 ℃, Humidity: 2 to 85 % RH (Avoid icing and condensation)
Weight		Approx. 150 g

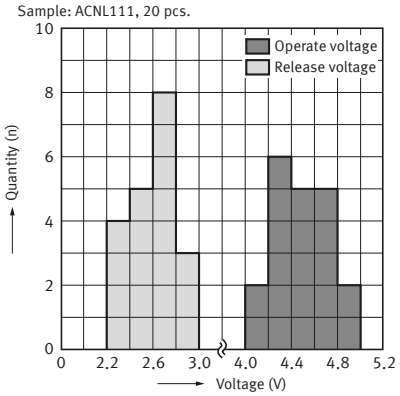
*1:This does not guarantee repeated carrying. We recommend that you confirm operation under actual conditions.
*2:This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.
*3:The upper 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 " .

REFERENCE DATA

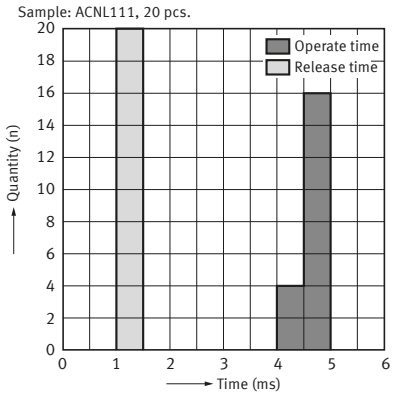
1. Ambient temperature characteristics



2. Distribution of operate and release voltage



3. Distribution of operate and release time

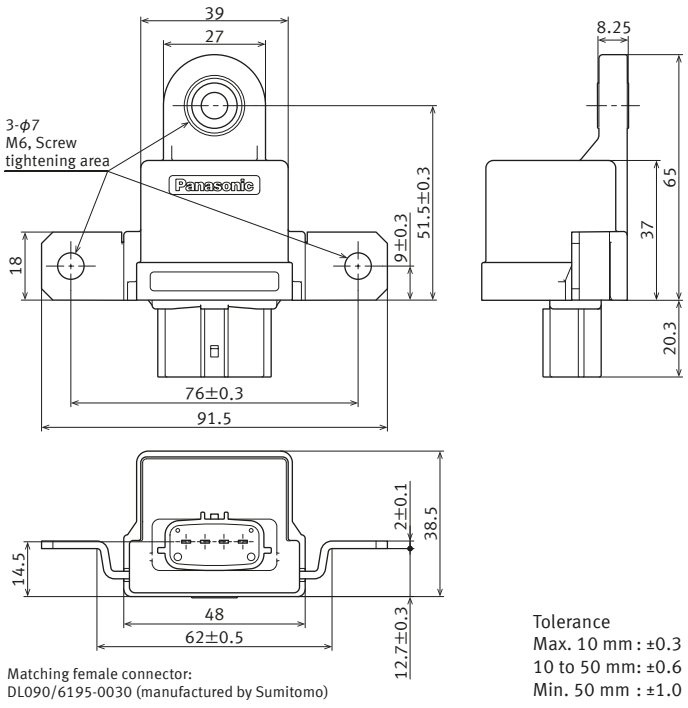


DIMENSIONS (Unit: mm)

CAD The CAD data of the products with a " CAD " mark can be downloaded from our Website.

CAD

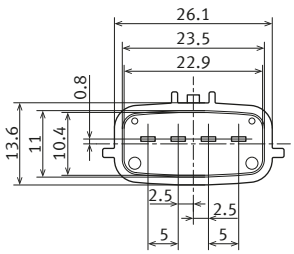
External dimensions



Matching female connector:
DL090/6195-0030 (manufactured by Sumitomo)

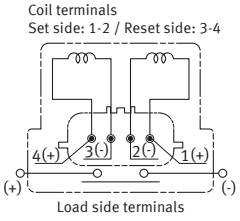
Tolerance
Max. 10 mm : ±0.3
10 to 50 mm: ±0.6
Min. 50 mm : ±1.0

Connector area enlarged view



Connector non-specified general tolerance
Max. 10 mm: ±0.15
10 to 50 mm: ±0.2

Schematic
(BOTTOM VIEW)



GUIDELINES FOR USAGE

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

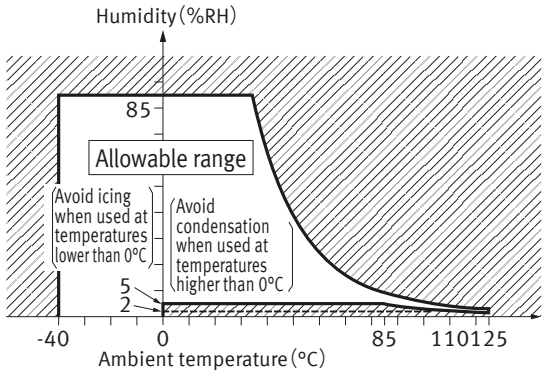
■ Precautions when using CN-L relays

● 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℃
   (2) Humidity: 2 to 85 % RH (Avoid icing and condensation)
   (3) Air pressure: 86 to 106 kPa

Note) The humidity range varies with the temperature. Use within the range indicated in the graph.

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



PRECAUTIONS REGARDING LATCHING RELAYS

● Latching relays are shipped from the factory in the reset state. A shock to the relay during shipping or installation may cause it to change to the set state. Therefore, it is recommended that the relay be used in a circuit which initializes the relay to the required state (reset) whenever the power is turned on.

● Avoid impressing voltages to the set coil and reset coil at the same time.

● The positive " + " and negative " − " connections to the coil should be done as indicated on the schematic diagram. If connected incorrectly, it may malfunction or fail to operate.

Please refer to **" the latest product specifications "** when designing your product.
• Requests to customers:
https://industry.panasonic.com/global/en/salespolicies

■ Global Sales Network Information: industry.panasonic.com/global/en/salesnetwork/globalnetwork

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Specifications are subject to change without notice.
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