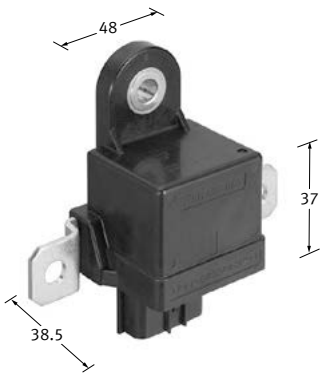
Automotive Relays

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°C) or 80 A (at 125°C).
- Maximum 1,500 A conductivity
- Can be used in environments with 125°C 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.

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RATING

■Coil data

Rated coil voltage	Operate (Set) voltage* (at 20°C)(Initial)	Release (Reset) voltage* (at 20°C)(Initial)	Rated operating current [±10%] (at 20°C)	Coil resistance [±10%] (at 20°C)	Rated operating power (at 20°C)	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

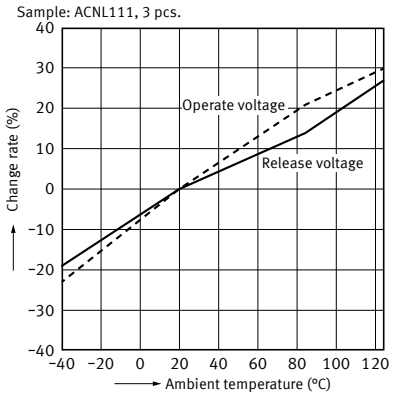
Item		Specifications
Contact data	Contact arrangement	1 Form A (Latching type)
	Contact resistance (initial, after stabilization)	Max. 1.5 mΩ (typ. 0.4 mΩ) (By voltage drop 1 A 6 V DC) Max. 1.0 mΩ (By voltage drop 10 A 6 V DC)
	Contact material	Ag alloy
	Rated switching capacity (resistive)	150 A 14 V DC
	Continuous carrying current	150 A (at 85°C, Connection cable: 38 mm^2) 80 A (at 125°C, Connection cable: 38 mm^2)
	Max. carrying current*1	1,500 A for 0.5 s (at forward direction, at 20°C, 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°C, connection cable: 38 mm^2)
	Min. switching load (resistive)*2	1 A 14 V DC (at 20°C)
	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 Vrms for 1 min (Detection current: 10 mA)
	Between contacts and coil	500 Vrms for 1 min (Detection current: 10 mA)
Time characteristics (initial)	Operate (Set) time (at rated voltage)	Max. 10 ms (at 20°C, without contact bounce time)
	Release (Reset) time (at rated voltage)	Max. 10 ms (at 20°C)
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 x 10^4 (Switching frequency: 1 s ON, 9 s OFF, at 85°C, connection cable: 38 mm^2)
Conditions	Conditions for usage, transport and storage *3	Ambient temperature: -40 to +125°C, Humidity: 2 to 85% RH (Avoid icing and condensation)
Weight		Approx. 150 g

Notes: *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”.

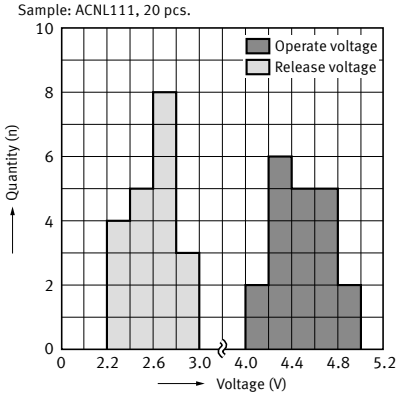
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REFERENCE DATA

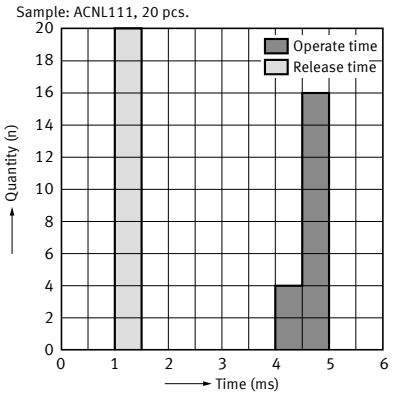
1.Ambient temperature characteristics



2.Distribution of operate and release voltage



3.Distribution of operate and release time



DIMENSIONS

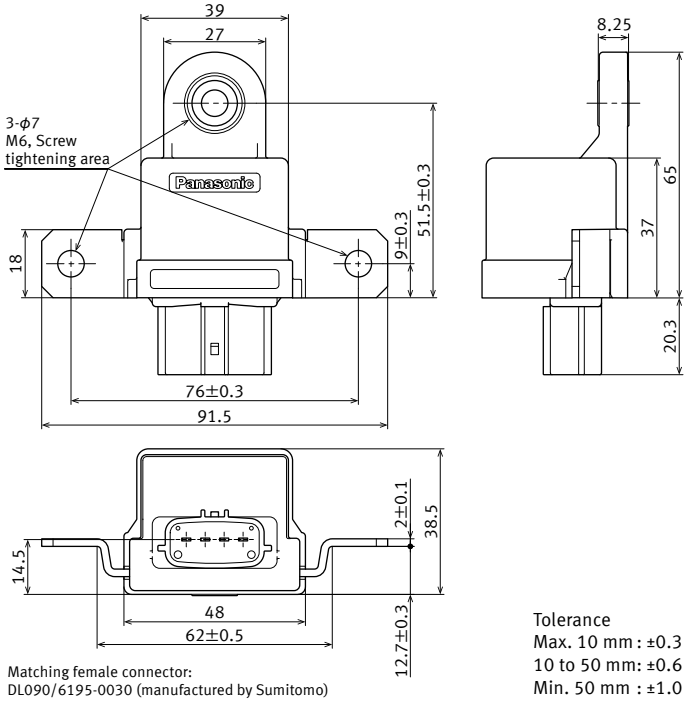
CAD The CAD data of the products with a "CAD" mark can be downloaded from our Website.

Unit: mm

CAD



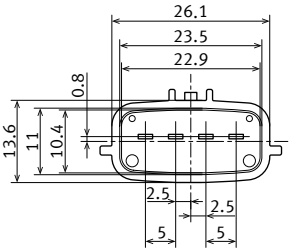
External dimensions



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

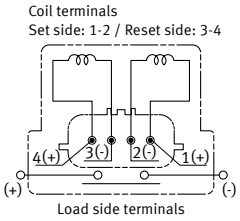
Tolerance
Max. 10 mm : ±0.3
10 to 50 mm: ±0.6
Min. 50 mm : ±1.0

Connector area enlarged view



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

Schematic
(BOTTOM VIEW)



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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

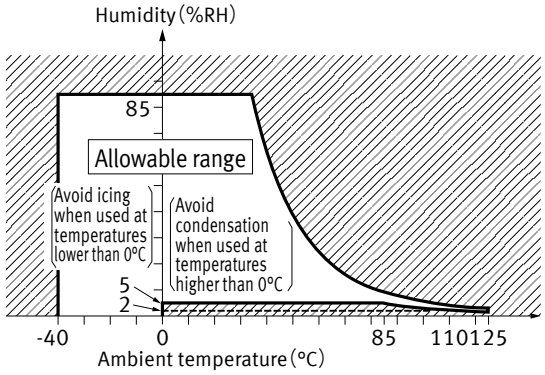
(1) Temperature: –40 to +125°C

(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.

[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://industrial.panasonic.com/ac/e/salespolicies/

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Specifications are subject to change without notice.