

**DESCRIPTION**

The NEXEM EX2/EX1 series is PC-board mount type and the most suitable for various motor and heater controls for automobiles which require high quality and high performance.

The EX2 series is succeeding for about 60% of miniaturization compared to ET2 series. The EX1 series is succeeding for about 50% of miniaturization compare to ET1 series.

**FEATURES**

- PC-board mounting
- Lead free solder is used
- Approx. 75% relay volume of ET2
- Approx. 60% relay space of ET2
- Approx. 88% relay weight of ET2
- Approx. 65% relay volume of ET1
- Approx. 50% relay space of ET1
- Approx. 78% relay weight of ET1

**APPLICATIONS**

- Motor control
- Solenoid control



EX2 SERIES



EX1 SERIES

**For Proper Use of Miniature Relays**

**DO NOT EXCEED MAXIMUM RATING**

Do not use relay under excessive conditions such as over ambient temperature, over voltage and over current. Incorrect use could result in abnormal heating and damage to the relay or other parts.

**READ CAUTIONS IN THE SELECTION GUIDE**

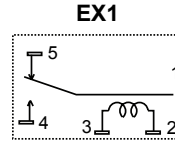
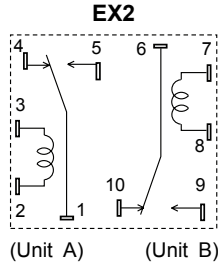
Read the cautions described in EM Devices' "Miniature Relays" before dose designing your relay applications.

The information in this document is subject to change without notice.

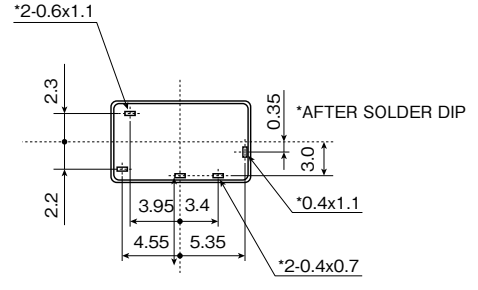
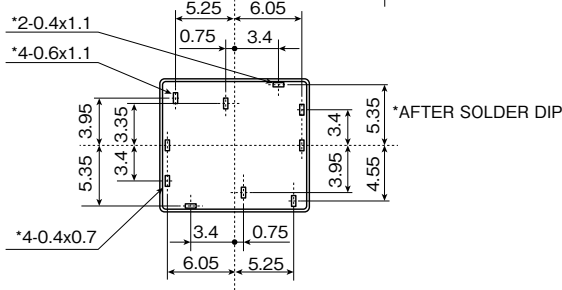
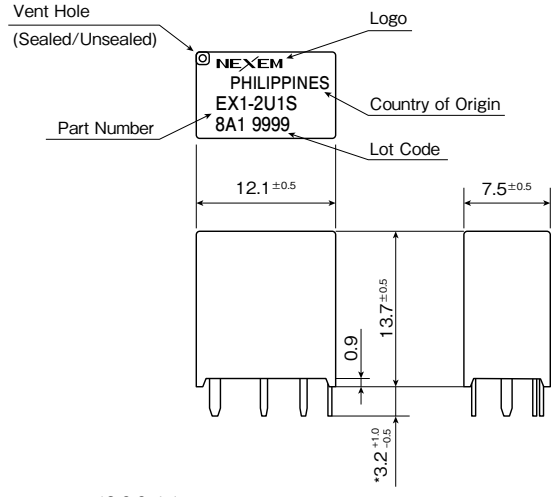
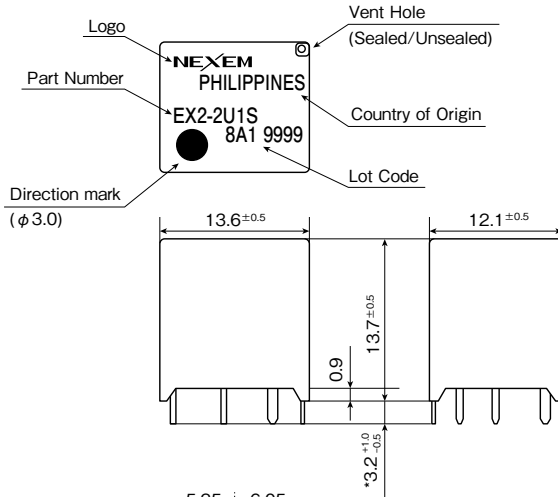


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SCHEMATIC (BOTTOM VIEW)



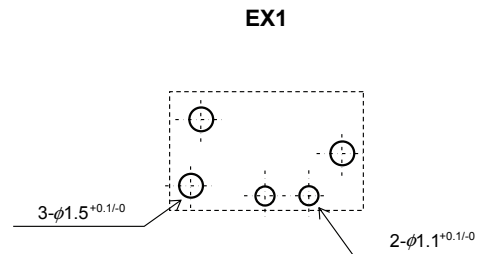
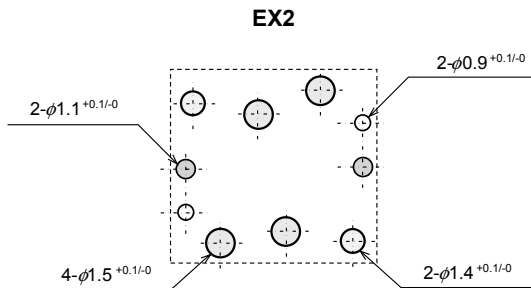
DIMENSIONS [mm]



EX2

EX1

PCB PAD LAYOUT [mm] (BOTTOM VIEW)



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**SPECIFICATION**

(Ambient temperature : 20 °C)

Items		Specifications	
		EX2	EX1
Contact Form		1 Form C x 2 (Separate)	1 Form C
Contact Rating	Maximum Switching Voltage	16VDC	
	Maximum Switching Current	30A (at16VDC)	
	Minimum Switching Current	1A (5VDC)	
	Maximum Carrying Current	35A (2minutes max. 12VDC at 25°C ) 30A (2minutes max. 12VDC at 85°C ) 20A (2minutes max. 12VDC at 125°C )	
	Contact Resistance	4mΩ typical (measured at 7A) initial	
Contact Material		Silver oxide complex alloy	
Operate Time (Excluding Bounce)		2.5ms typical (at nominal voltage)	
Release Time (Excluding Bounce)		3ms typical (at nominal voltage with diode)	
Nominal Operating Power		900mW	
Insulation Resistance		100MΩ at 500VDC	
Withstand Voltage	Between Open Contacts	500VAC min. (for 1minute)	
	Between Coil and Contacts	500VAC min. (for 1minute)	
Shock Resistance	Misoperation	98m/s <sup>2</sup>	
	Destructive Failure	980m/s <sup>2</sup>	
Vibration Resistance	Misoperation	10 to 300Hz, 43m/s <sup>2</sup>	
	Destructive Failure	10 to 500Hz 43m/s <sup>2</sup> , 200hour	
Ambient Temperature		-40 to +125 °C	
Coil Temperature Rise		70°C / W (without contact carrying current)	
Running Specifications	Non-load		1 x 10 <sup>6</sup> operations
	Load	P/W motor lock (14Vdc, 25A)	100x10 <sup>3</sup> operations
		P/W motor free (14Vdc, 25A/7A)	100x10 <sup>3</sup> operations
Weight		Approx. 6.5g	Approx. 3.5g

**COIL RATING**

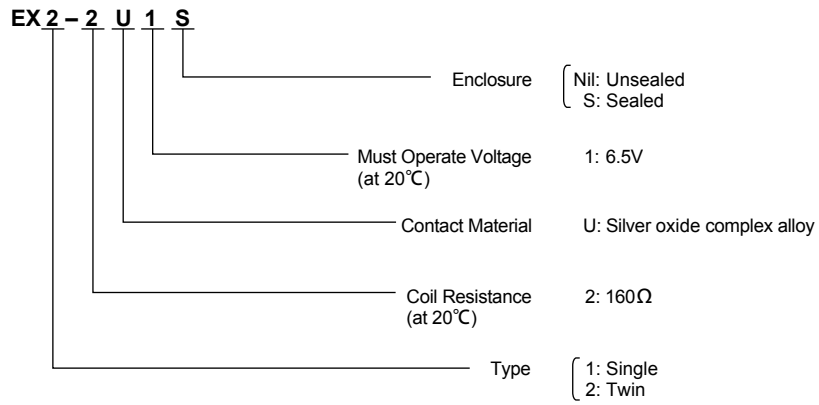
(Ambient temperature : 20 °C)

Part Numbers	Nominal Voltage (VDC)	Coil Resistance (Ω)+/-10%	Must Operate Voltage (VDC)	Must Release Voltage (VDC)
EX2/1-2U1S (Sealed type)	12	160	6.5	0.9
EX2/1-2U1 (Unsealed type)	12	160	6.5	0.9



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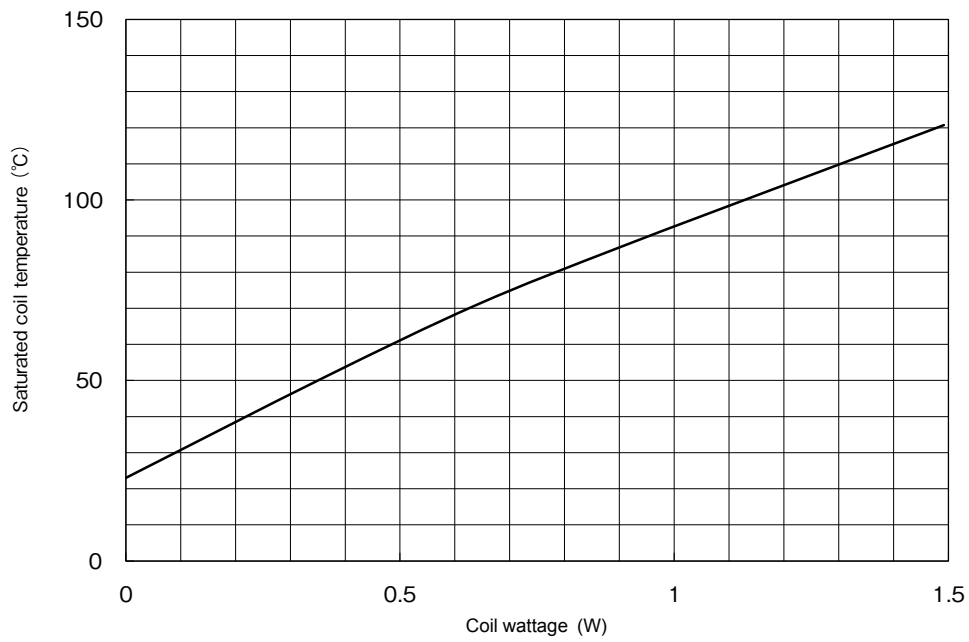
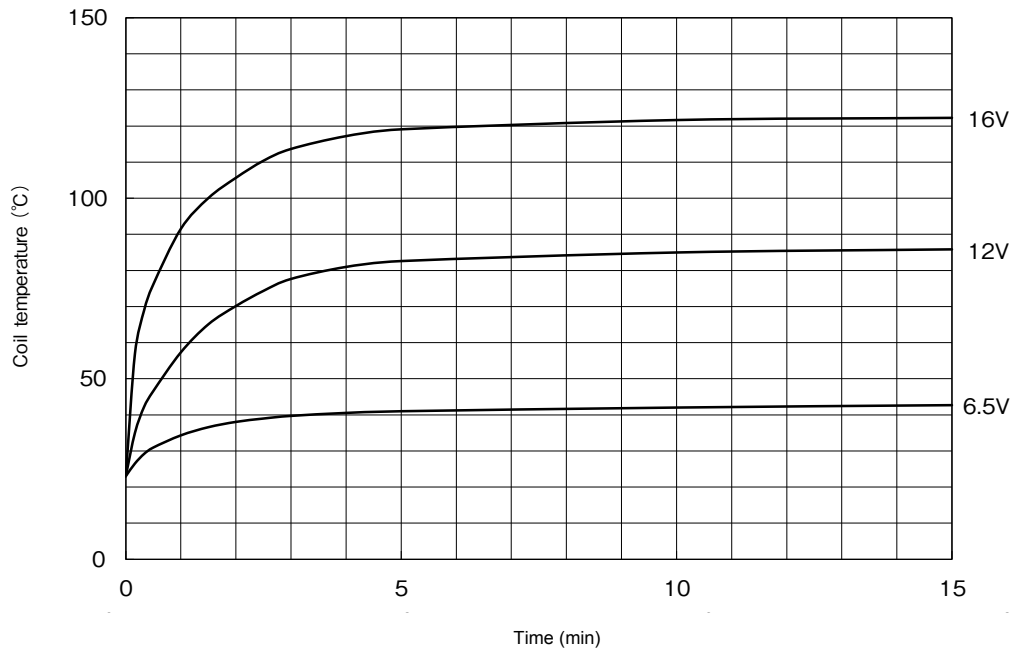
**NUMBERING SYSTEM**



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TECHNICAL DATA

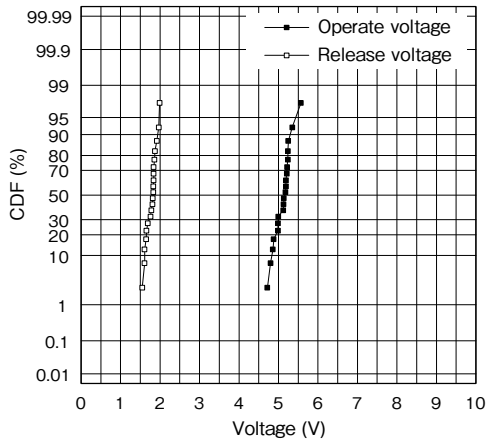
Coil Temperature Rise



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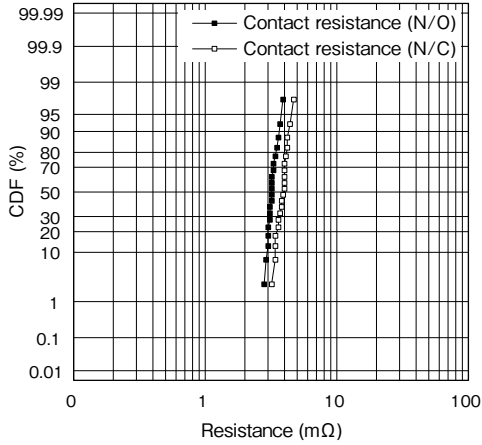
RELAY CHARACTERISTICS DISTRIBUTION (INITIAL, n = 20 pcs., at 20°C)

Operate/Release Voltage

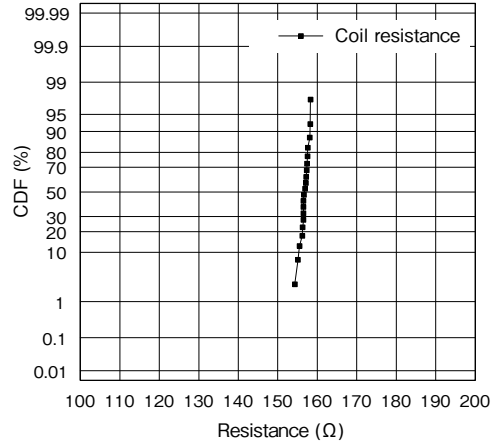


Specimen : EX2-2U1S  
 Ambient Temperature : 20°C  
 Quantity : 20 pcs.

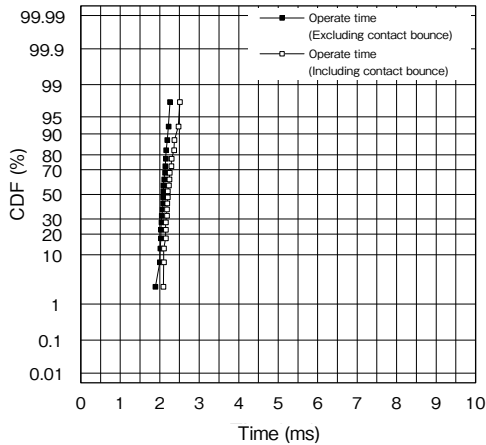
Contact Resistance



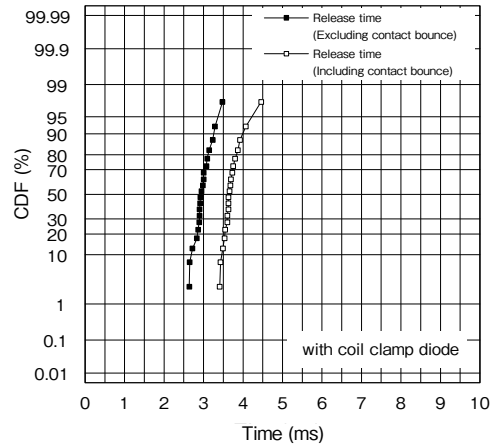
Coil Resistance



Operate Time



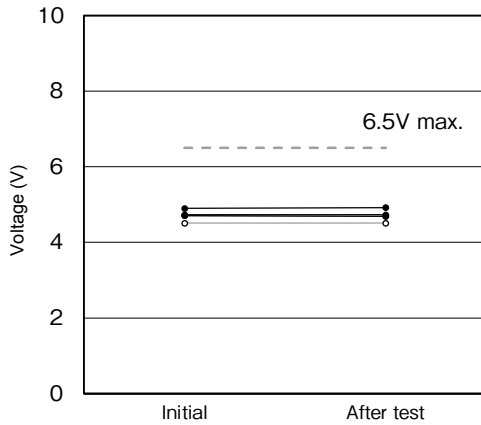
Release Time



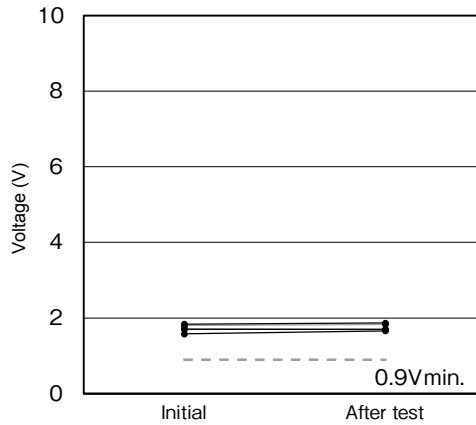
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**ELECTRICAL LIFE TEST (14VDC-25A, P/W motor, Lock)**

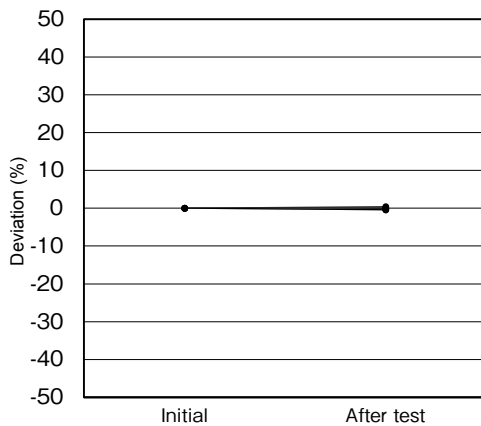
Test items	Test conditions	Samples
1. Operate voltage 2. Release voltage 3. Contact resistance 4. Coil resistance 5. Operate time 6. Release time (with coil clamp diode)	Temperature :20°C Frequency :0.1Hz (0.2s ON, 9.8s OFF) Contact load :14VDC-25A, P/W motor, Lock Number of operations :100 x 10 <sup>3</sup>	EX2-2U1S 5 pcs



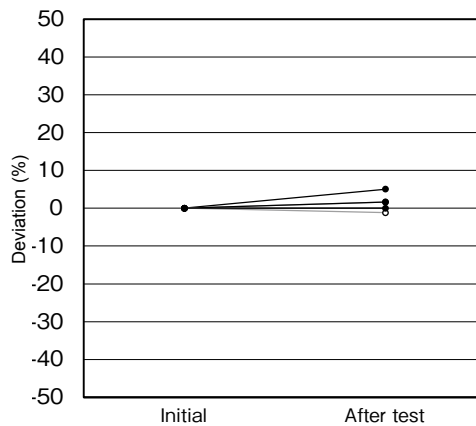
**Operate voltage**



**Release voltage**



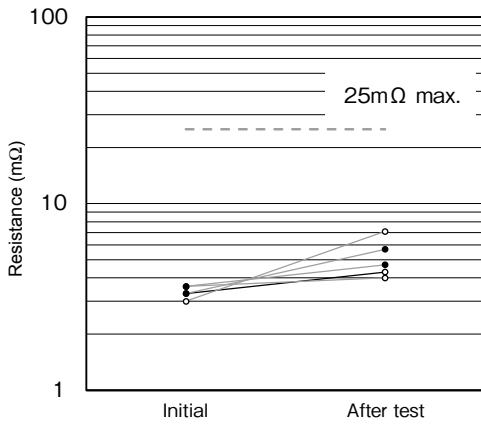
**Operate voltage**



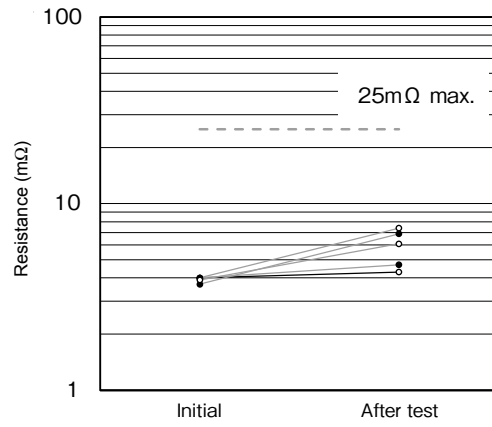
**Release voltage**



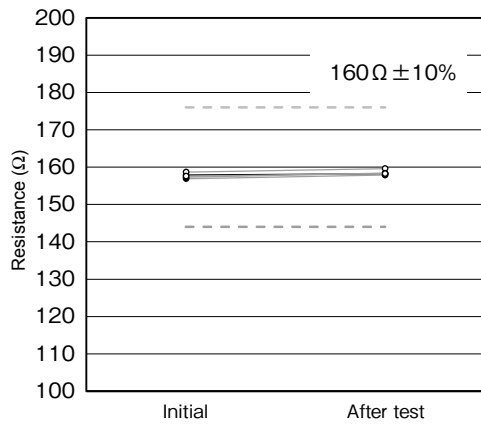
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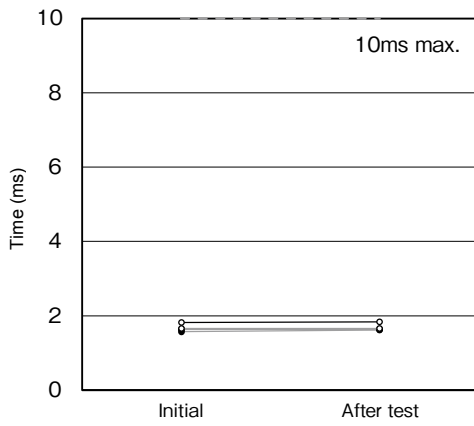
Contact resistance (N/O)



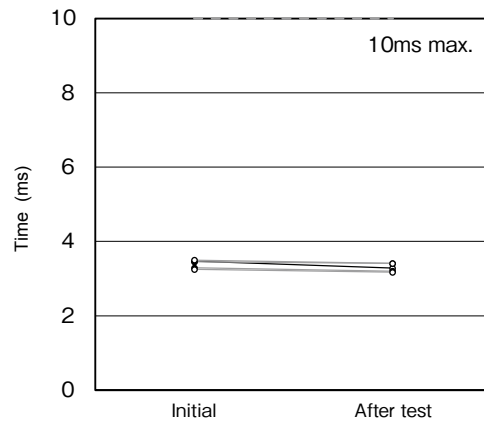
Contact resistance (N/C)



Coil resistance



Operate time



Release time



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