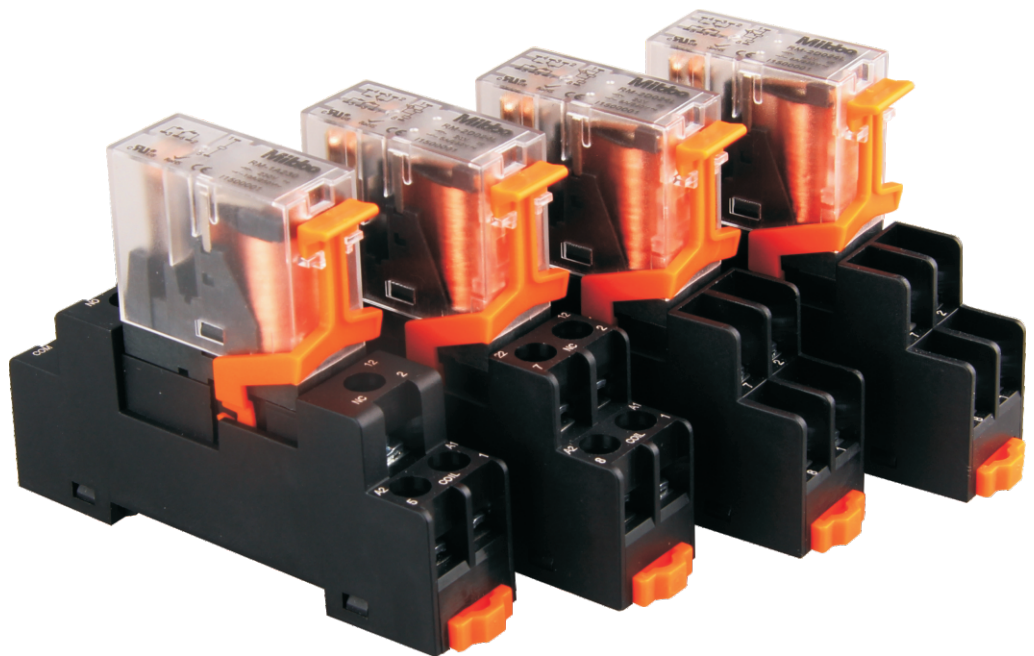


# Miniature Intermediate Power Relays

Reliable and Safe

Superb Technology of Industrial Control



**Mibbo**

Manufacturing Products for QA Customers



Manufacturing Products for QA Customers

**Mibbo**

Family



>>> **Mibbo**

Mibbo is committed to researching and developing, manufacturing and selling industrial control products. To serve the midrange and high end equipment manufactures and system integrators. It pursues "Manufacturing products for QA Customers" to provide customers with high quality products and personalized solutions, and finally to achieve corporate value and customer value growth.

Miniature Intermediate Power Relay is one of the major products in Mibbo. To provide our customers more efficient, reliable and qualified solutions in many fields, such as Industrial Automatic Control, Intelligent Control System, Setting and Equipment of Electronic Instrument, Household Appliances etc.

### >>> Catalogue

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# RM series Miniature Power Relay



## ● Features

- Built-in LED
- 1 & 2 pole configurations
- Gold plated contact available
- Silver plated contact, Smoke cover type available
- Sockets available
- Environmental friendly products (RoHS compliant)
- Outline Dimensions (Max.): 29mm×12.6mm×28mm

## ● Ordering Information

<b>RM</b>	<b>-</b>	<b>2</b>	<b>D</b>	<b>024</b>	<b>L</b>	<b>T</b>
Power relay	Contact Arrangement 1:1 Form C 2:2 Form C	Coil Power D: DC A: AC	Coil Voltage DC:12VDC to 110VDC AC:12VAC to 230VAC	L:with LED Non:without LED	T: Test Button(Available)	

## Specification

Contact Data		1D、1A	2D、2A
Contact Arrangement		1D、1A	2D、2A
Contact Resistance		≤100mΩ (1A 6VDC)	
Contact Material		Silver Plated (Gold Plated Available)	
Contact Ratings		12A 250VAC/30VDC	8A 250VAC/30VDC
Max Switching Voltage		250VAC/30VDC	
Max Switching Current		12A	8A
Max Switching Power		3000VA/360W	2000VA/240W
Mechanical Endurance		1×10 <sup>7</sup> ops	
Electrical Endurance		1D/1A: 1×10 <sup>5</sup> ops (12A 250VAC/30VDC, Resistive load, Room temp, 1s on 9s off) 2D/2A: 1×10 <sup>5</sup> ops (8A 250VAC/30VDC, Resistive load, Room temp, 1s on 1s off)	
Characteristics			
Insulation Resistance		1000MΩ (500VDC)	
Dielectric Strength	Between Coil & Contact	5000VAC 1min	
	Between Open Contacts	1000VAC 1min	
	Between Contacts Sets	3000VAC 1min	
Operation Time(At nomi. volt.)		20ms max.	
Release Time(At nomi. volt.)		10ms max.	
Temperature Rise(No-Load, At nomi.volt.)		≤60K	
Shock Resistance	Functional	98m/s <sup>2</sup>	
	Destructive	980m/s <sup>2</sup>	
Vibration Resistance		10Hz to 55Hz 1mm DA	
Humidity		5%~85%RH	
Ambient Temperature		-40℃~ 55℃	
Terminal		Plug-in	
Unit Weight		Approx. 18g	
Construction		Dust protected	
COIL			
Coil Power		DC type: approx.0.9W to 1.1W; AC type: approx.1.2VA to 1.8VA	

Coil Data 25℃				
Nominal Voltage VDC	Pick-up Voltage <sup>(1)</sup> VDC	Drop-out Voltage VDC	Max. Voltage <sup>(2)</sup> VDC	Coil Resistance Ω
12	≤9.6	≥1.2	13.2	160× (1±10%)
24	≤19.2	≥2.4	26.4	650× (1±10%)
48	≤38.4	≥4.8	52.8	2600× (1±15%)
110	≤88.0	≥11.0	121	11000× (1±15%)

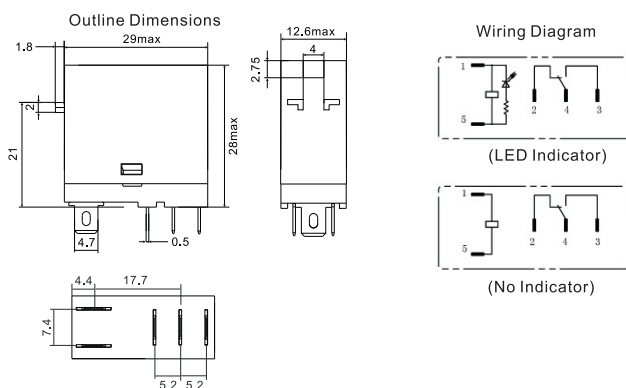
Coil Data 25℃				
Nominal Voltage VAC	Pick-up Voltage <sup>(1)</sup> VAC	Drop-out Voltage VAC	Max. Voltage <sup>(2)</sup> VAC	Coil Resistance Ω
12	≤9.6	≥3.6	13.2	46× (1±10%)
24	≤19.2	≥7.2	26.4	184× (1±10%)
48	≤38.4	≥14.4	52.8	735× (1±10%)
110	≤96.0	≥36.0	132	4550× (1±15%)
230	≤176.0	≥72.0	264	14400× (1±15%)

- Notes: 1) Under ambient temperature, applying more than 80% of rating voltage to coil, relays will take action accordingly. But in order to meet the stated product performance, please apply rated voltage to coil.  
2) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.  
3) The above values are all initial value.

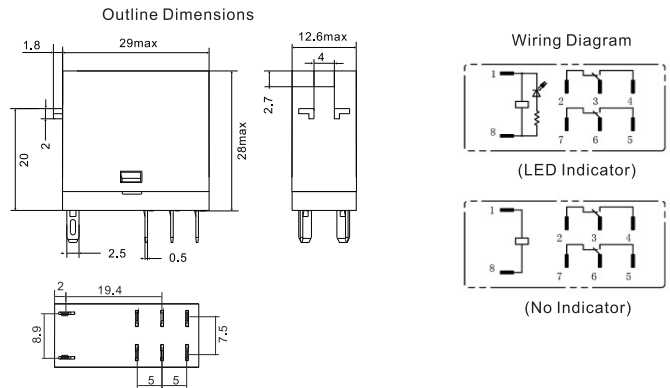
## Outline Dimensions, Wiring Diagram and PC Board Layout

Unit: mm

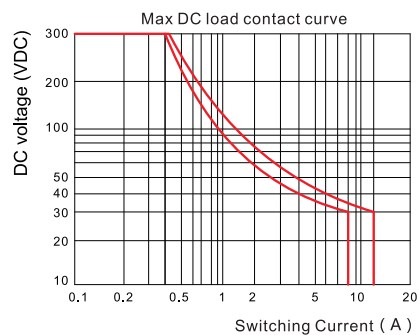
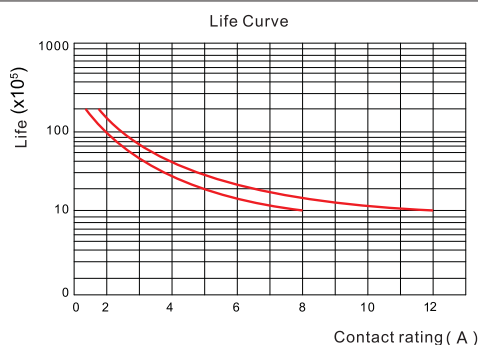
### ●RM-1D/1A□L



### ●RM-2D/2A□L



## Characteristic Curves



# RM series PCB Type Power Relay



## ● Features

- PCB Mounting
- 1 & 2 pole configurations
- Silver plated contact, Gold plated contact available
- Smoke cover type available
- Environmental friendly products (RoHS compliant)
- Outline Dimensions (Max.): 29mm×13mm×26mm

## ● Ordering Information

<b>RM</b>	<b>-</b>	<b>1</b>	<b>A</b>	<b>230</b>	<b>P</b>
Power relay		Contact Arrangement 1:1 Form C 2:2 Form C	Coil Power D: DC A: AC	Coil Voltage DC:12VDC to 110VDC AC:12VAC to 230 VAC	P:PCB Mounting

## Specification

Contact Data		
Contact Arrangement	1D、1A                      2D、2A	
Contact Resistance	≤100mΩ (1A 6VDC)	
Contact Material	Silver Plated (Gold Plated Available)	
Contact Ratings	10A 250VAC/30VDC                      5A 250VAC/30VDC	
Max Switching Voltage	250VAC/30VDC	
Max Switching Current	10A                      5A	
Max Switching Power	2500VA/300W                      1250VA/150W	
Mechanical Endurance	1×10 <sup>7</sup> ops	
Electrical Endurance	1D/1A: 1×10 <sup>6</sup> ops(10A 250VAC/30VDC, Resistive load, Room temp, 1s on 9s off) 2D/2A: 1×10 <sup>5</sup> ops(5A 250VAC/30VDC, Resistive load, Room temp, 1s on 1s off)	
Characteristics		
Insulation Resistance	1000MΩ (500VDC)	
Dielectric Strength	Between Coil & Contact	5000VAC 1min
	Between Open Contacts	1000VAC 1min
	Between Contacts Sets	1000 VAC 1min
Operation Time(At nomi. volt.)	20ms max.	
Release Time(At nomi. volt.)	10ms max.	
Temperature Rise(No-Load, At nomi. volt.)	≤60K	
Shock Resistance	Functional	98m/s <sup>2</sup>
	Destructive	980m/s <sup>2</sup>
Vibration Resistance	10Hz to 55Hz 1mm DA	
Humidity	5%~85%RH	
Ambient Temperature	-40℃~ 65℃	
Terminal	PCB mounting	
Unit Weight	Approx. 17g	
Construction	Dust protected	
COIL		
Coil Power	DC type: approx.0.9W to 1.1W; AC type: approx. 1.2VA to 1.8VA	

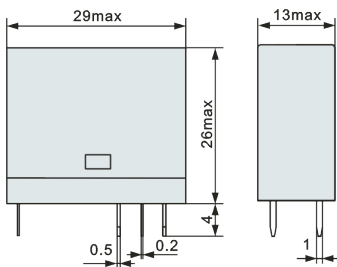
Coil Data 25℃				
Nominal Voltage VDC	Pick-up Voltage <sup>(1)</sup> VDC	Drop-out Voltage VDC	Max. Voltage <sup>(2)</sup> VDC	Coil Resistance Ω
12	≤9.6	≥1.2	13.2	160× (1±10%)
24	≤19.2	≥2.4	26.4	650× (1±10%)
48	≤38.4	≥4.8	52.8	2600× (1±15%)
110	≤88.0	≥11.0	121	11000× (1±15%)
Coil Data 25℃				
Nominal Voltage VAC	Pick-up Voltage <sup>(1)</sup> VAC	Drop-out Voltage VAC	Max. Voltage <sup>(2)</sup> VAC	Coil Resistance Ω
12	≤9.6	≥3.6	13.2	46× (1±10%)
24	≤19.2	≥7.2	26.4	184× (1±10%)
48	≤38.4	≥14.4	52.8	735× (1±10%)
110	≤96.0	≥36.0	132	4550× (1±15%)
230	≤176.0	≥72.0	264	14400× (1±15%)

- Notes: 1) Under ambient temperature, applying more than 80% of rating voltage to coil, relays will take action accordingly. But in order to meet the stated product performance, please apply rated voltage to coil.  
2) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.  
3) The above values are all initial value.

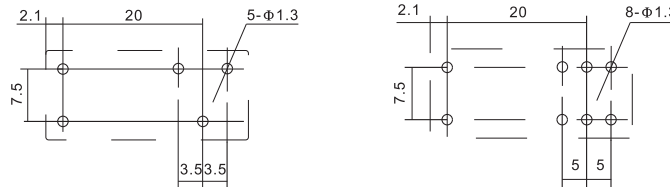
## Outline Dimensions, Wiring Diagram and PC Board Layout

Unit:mm

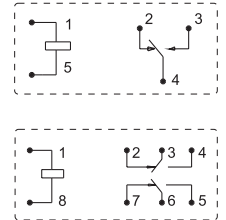
### Outline Dimensions



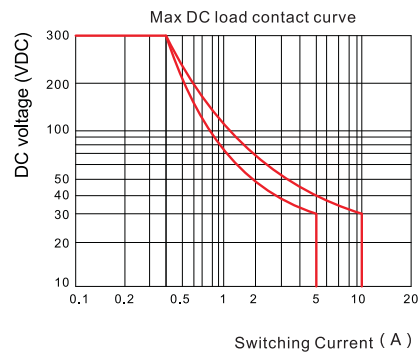
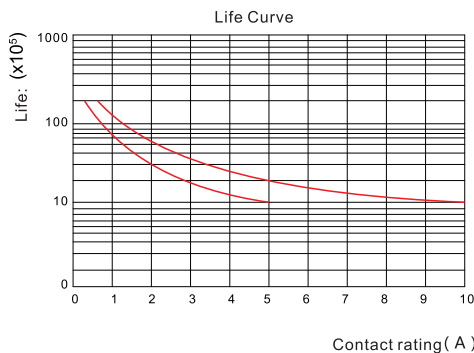
### PC Board Layout



### Wiring Diagram



## Characteristic Curves



# RN series I/O Power Relay



## ● Features

- 1 Form NO and 1 Form C configurations
- Various mounting available
- Sockets available
- RL-N05 Series base available
- Environmental friendly products (RoHS compliant)
- Outline Dimensions (Max.): 28mm×5mm×15mm

## ● Ordering Information

<b>RN</b>	<b>-</b>	<b>1</b>	<b>D</b>	<b>024</b>
Power relay		Contact arrangement 1:1 Form C 1H:1 Form NO	Coil Power D: DC	Coil Voltage DC:12VDC to 60VDC

## Specification

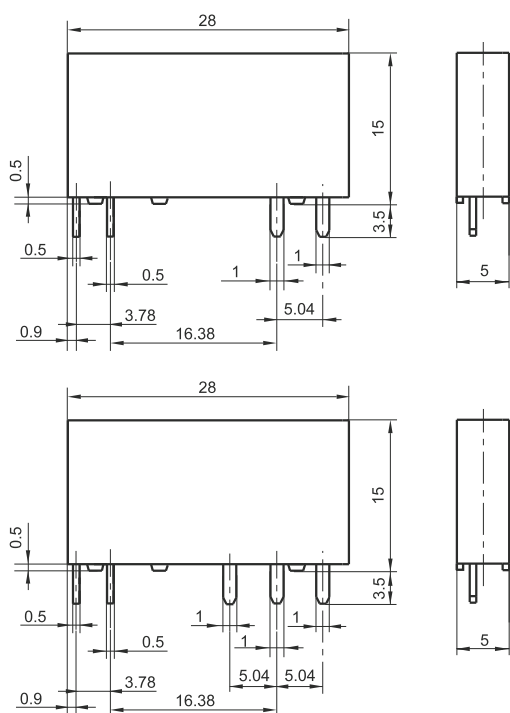
Contact Data	
Contact Arrangement	1D 1HD
Contact Resistance	≤50mΩ (1A 6VDC)
Contact Material	Silver Plated
Contact Ratings	6A 250VAC/30VDC 6A 250VAC/30VDC
Max Switching Voltage	400VAC / 125VDC
Max Switching Current	6A 6A
Max Switching Power	1500VA/180W 1500VA/180W
Mechanical Endurance	1×10 <sup>7</sup> ops
Electrical Endurance	1D:3×10 <sup>4</sup> ops(6A 250VAC/30VDC, Resistive load, Room temp, 1s on 1s off) 1HD:6×10 <sup>4</sup> ops(6A 250VAC/30VDC, Resistive load, Room temp, 1s on 1s off)
Characteristics	
Insulation Resistance	1000MΩ (500VDC)
Dielectric Strength	Between Coil & Contact
	Between Open Contacts
Operation Time(At nomi. volt.)	8ms max.
Release Time(At nomi. volt.)	4ms max.
Temperature Rise(No-Load, At nomi. volt.)	≤60K
Shock Resistance	Functional
	Destructive
Vibration Resistance	10Hz to 55Hz 1mm DA
Humidity	5%~85%RH
Ambient Temperature	-40℃~ 85℃
Terminal	PCB mounting
Unit Weight	Approx. 5g
Construction	Dust protected
COIL	
Coil Power	approx.0.17W to 0.21W

Coil Data 25℃				
Nominal Voltage VDC	Pick-up Voltage <sup>(1)</sup> VDC	Drop-out Voltage VDC	Max. Voltage <sup>(2)</sup> VDC	Coil Resistance Ω
12	≤9.0	≥0.6	18	848× (1±10%)
24	≤18	≥1.2	36	3390× (1±10%)
48	≤36	≥2.4	72	10600× (1±10%)
110	≤45	≥3	90	16600× (1±10%)

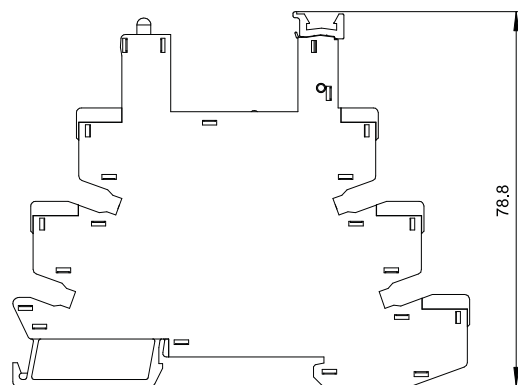
- Notes: 1) Under ambient temperature, applying more than 80% of rating voltage to coil, relays will take action accordingly. But in order to meet the stated product performance, please apply rated voltage to coil.  
2) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.  
3) The above values are all initial value.

## Outline Dimensions, Wiring Diagram and PC Board Layout

Unit:mm

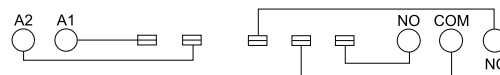


## Outline Dimensions



RL-N05E Screw, Crimp Connection System  
RL-N05S Rapid Insertion Connection System

## Wiring Diagram(Bottom View)



# RQ series Automotive Relay



## ● Features

- Switching capability up to 40A,50A,60A,70A,80A
- 1 Form NO & 1 Form C contact arrangement
- Various mounting terminations available
- Various working voltage
- Environmental friendly products (RoHS compliant)
- Outline Dimensions (Max.): 26.5mm×26.5mm×23.8mm

## ● Applications

- Rear window defogger, Rear window defogger, Air-conditioning, Fuel pump control
- Horn control, Cooling fan control, Heating control, Fog lamp & headlight control
- ABS

## ● Ordering Information

<b>RQ</b>	<b>-</b>	<b>1H</b>	<b>D</b>	<b>024</b>	<b>A</b>
automotive relay		Contact arrangement 1:1 Form C 1H:1 Form NO	Coil Power D: DC	Coil Voltage 012: 12VDC 024: 24VDC	Load Current A: 40A B: 50A C: 60A D: 70A E: 80A

## Specification

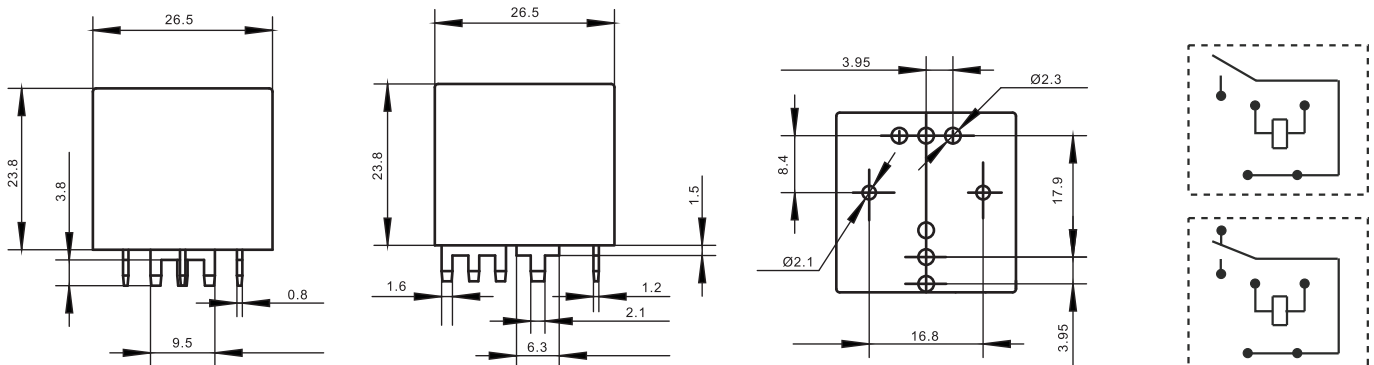
Contact Data	
Contact Arrangement	1H 1Z
Min. contact load	1A 6VDC
Contact Material	Silver Plated (Gold Plated Available)
Voltage Drop	40mV(at10A),200mV max.(at 10A)
Mechanical Endurance	1×10 <sup>7</sup> ops
Electrical Endurance	1H: 1×10 <sup>6</sup> ops(Rated load,14VDC,Resistive load,Room temp,2s on 2s off) 1Z:1×10 <sup>6</sup> ops(Rated load,14VDC,Resistive load,Room temp,2s on 2s off)
Characteristics	
Insulation Resistance	100MΩ (500VDC)
Dielectric Strength	Between Coil & Contact
	Between Open Contacts
Operation Tim(At nomi.volt.)	10ms max.
Release Time(At nomi.volt.)	10ms max.
Shock Resistance	196m/s <sup>2</sup>
Mechanical data	cover retention(pull&push):200 min.
	terminal retention(pull&push):100min.
	terminal resistance to bending (front &side):10N min.
Vibration Resistance	10Hz to 55Hz 1mm DA
Humidity	5%~85%RH
Ambient Temperature	-40℃~ 125℃
Terminal	PCB mounting
Unit Weight	Approx. 35g
Construction	Dust protected
COIL	
Coil Power	DC type: approx.0.9W to1.1W; AC type: approx.1.2VA to1.8VA

Coil Data 25℃				
Nominal Voltage VDC	Pick-up Voltage <sup>(1)</sup> VDC	Drop-out Voltage VDC	Max. Voltage <sup>(2)</sup> VDC	Coil Resistance Ω
6	≤3.9	≥0.6	10.1	22× (1±10%)
12	≤7.2	≥1.2	20.2	85× (1±10%)
24	≤14.4	≥2.4	40.5	350× (1±15%)

- Notes: 1) Under ambient temperature, applying more than 80% of rating voltage to coil, relays will take action accordingly. But in order to meet the stated product performance, please apply rated voltage to coil.  
2) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.  
3) The above values are all initial value.

## Outline Dimensions, Wiring Diagram and PC Board Layout

Unit:mm



## Relay Socket




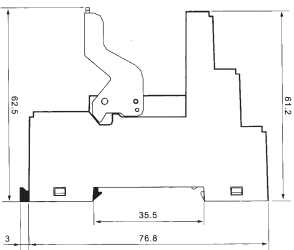
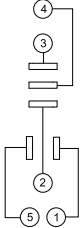
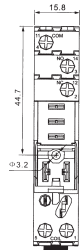

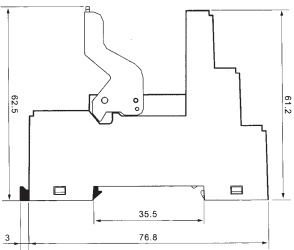
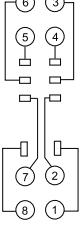
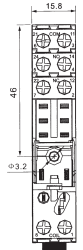

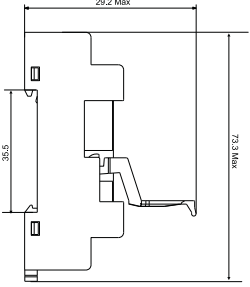
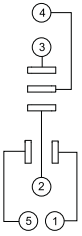
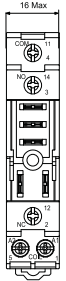
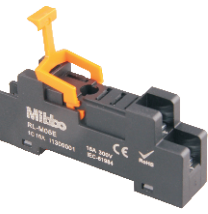
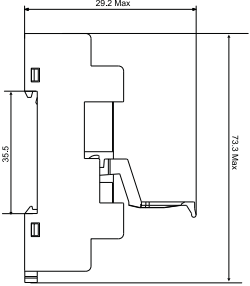
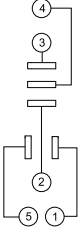
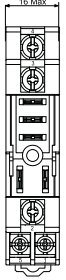

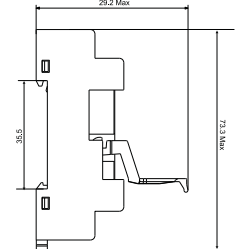
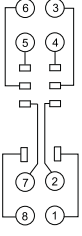
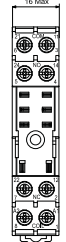

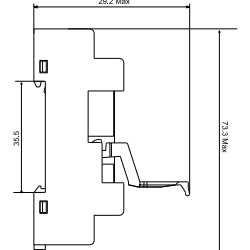
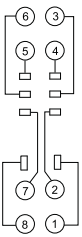
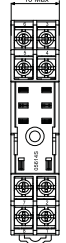
## ● Features


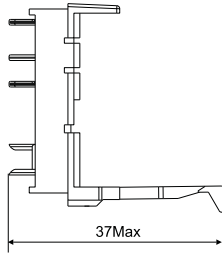
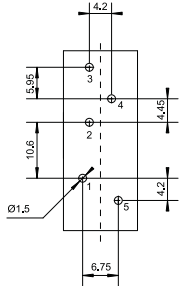
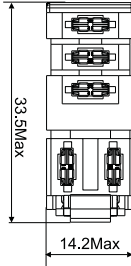

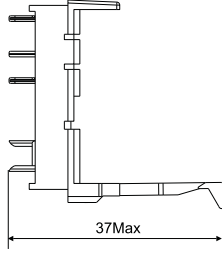
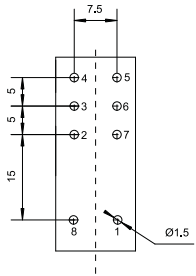
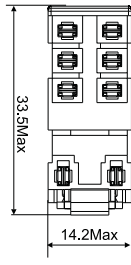
- The dielectric strength can reach 2000VAC and the insulation resistance is 1000MΩ
- Mounting types are available: screw mounting and DIN rail mounting
- Components available: Plastic Retainer, marker, jumper and separator
- Environmental friendly products (RoHS compliant)

## ● Ordering Information

<b>RL</b>	<b>-</b>	<b>M</b>	<b>08</b>	<b>E</b>
Relay socket		RM Series socket	Socket Code 05:1 Form C socket 08:2 Form C socket	Protection Device E: Without finger protection device F: With finger protection device U: European protection device P: PCB mounting

Type	Nominal Voltage	Nominal Current	Ambient Temperature	Dielectric Strength min.	Screw Torque	Wire Strip Length
RL-M□□	300VAC	16A	-45℃~85℃	2500VAC	1.0N·m	7mm

Socket	Outline Dimensions	Wiring Diagram	PC Board Layout	Accessory Available
<p>RL-M05U</p> 				<p>Plastic Retainer Marker Plug-in Module</p>
<p>RL-M08U</p> 				<p>Plastic Retainer Marker Plug-in Module</p>
<p>RL-M05F</p> 				<p>Plastic Retainer</p>
<p>RL-M05E</p> 				<p>Plastic Retainer</p>
<p>RL-M08F</p> 				<p>Plastic Retainer</p>
<p>RL-M08E</p> 				<p>Plastic Retainer</p>

Socket	Outline Dimensions	Wiring Diagram	PC Board Layout	Accessory Available
RL-M05P 	 <p>37Max</p>	 <p>4.2 5.95 9.00 4.2 6.75 Ø1.5</p>	 <p>33.5Max 14.2Max</p>	Plastic Retainer
RL-M08P 	 <p>37Max</p>	 <p>7.5 5 5 15 Ø1.5</p>	 <p>33.5Max 14.2Max</p>	Plastic Retainer

## ● Socket Accessory

Marker  
Model:BS-M  
With RL-M□U



## ● Jumper

Model: KJ01  
Applicable RL-N05E  
Terminal connection  
KJ01 Blue  
KJ01B Black  
KJ01R Red

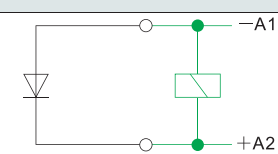
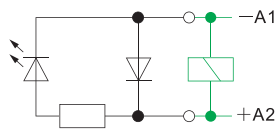


## ● Protective Module



### ● Ordering Information

<b>RD</b>	<b>-</b>	<b>M</b>	<b>024</b>	<b>L</b>
Socket Protective Module		M: RL-M□ socket G: RL-G□ socket	Coil Voltage 024:6-24VAC/DC 048:12-48VAC/DC 060:24-60VAC/DC 240:110-240VAC/DC	D:with Diode L:LED Indicator DL:Diode+Indicator

Type	Circuit Diagram	Functions
RD-M060D		<ul style="list-style-type: none"> <li>● With diode to protect the coil and to eliminate the converse current</li> </ul>
RD-M048DL		<ul style="list-style-type: none"> <li>● With diode to protect the coil and to eliminate the converse current</li> <li>● With LED to show the coil in voltage</li> </ul>