

# QM Series Electromechanical Relay Selection Guide



QM series relays are general purpose relays designed for a wide range of applications, from power to sequence controls in various factory machines and control panels. They are ideal for electric control panels requiring stable and reliable relays.

## Features

- Small package design
- DPDT has a fine silver contact with 5A capability
- 4PDT has a gold-plated silver contact with 3A capability
- High dielectric strength (1,800 VAC)
- High reliability and long life
- Ultra-high sensitivity with quick response time (20 ms max.)
- High vibration and shock resistance
- LED indicator on all models, so you can easily see if relay is working properly without using a voltmeter
- Diode protection on some 24 VDC models protects contacts and electronic components from back EMF
- UL recognized, CE certified, CSA certified (218218)

• **ORDER SOCKET SEPARATELY**

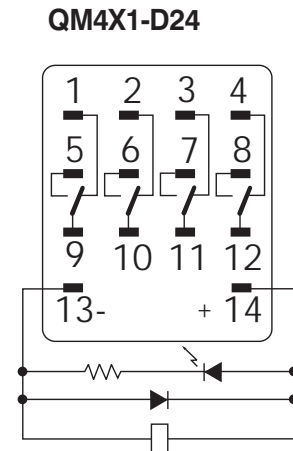
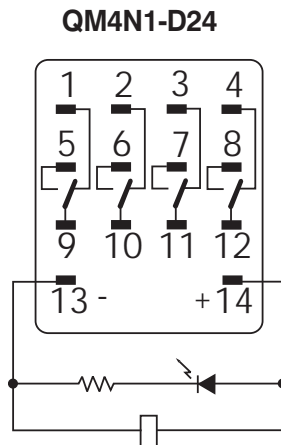
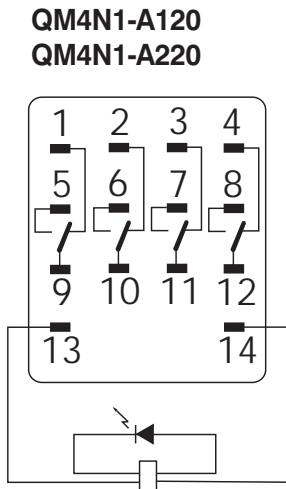
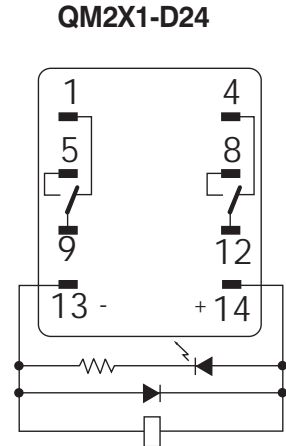
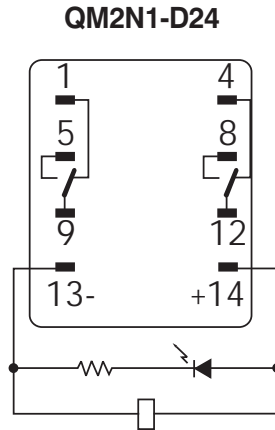
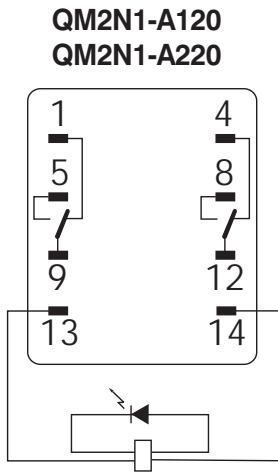
QM Series Selection Guide								
Part Number	Price	Coil Voltage	Configuration	Contact Rating	Dimensions (see page 24-11)	Relay Socket Part Number	Price	Dimensions (see page 24-13)
<b>QM2N1-A120</b>	<--->	110/120VAC	2PDT	5A	Figure 1	<b>SQM08D</b>	<--->	Figure 5
<b>QM4N1-A120</b>	<--->		4PDT	3A	Figure 2	<b>SQM14D</b>	<--->	Figure 6
<b>QM2N1-A220</b>	<--->	220VAC	2PDT	5A	Figure 1	<b>SQM08D</b>	<--->	Figure 5
<b>QM4N1-A220</b>	<--->		4PDT	3A	Figure 2	<b>SQM14D</b>	<--->	Figure 6
<b>QM2N1-D24</b>	<--->	24VDC	2PDT	5A	Figure 1	<b>SQM08D</b>	<--->	Figure 5
<b>QM2X1-D24</b>	<--->		2PDT	5A	Figure 1	<b>SQM08D</b>	<--->	Figure 5
<b>QM4N1-D24</b>	<--->		4PDT	3A	Figure 2	<b>SQM14D</b>	<--->	Figure 6
<b>QM4X1-D24</b>	<--->		4PDT	3A	Figure 2	<b>SQM14D</b>	<--->	Figure 6

# QM Series Electromechanical Relay Specifications

QM Series Specification Table								
Part Numbers	QM2N1-A120	QM2N1-A220	QM4N1-A120	QM4N1-A220	QM2N1-D24	QM2X1-D24	QM4N1-D24	QM4X1-D24
<b>Contact Specifications</b>								
<b>Current Rating</b>	5A		3A		5A		3A	
<b>Contact Type</b>	DPDT		4PDT		DPDT		4PDT	
<b>Terminal Type</b>	Spade plug-in socket							
<b>Rated Max. Resistive Load</b>	5A @ 220VAC/5A @ 24VDC		3A @ 220VAC/3A @ 24VDC		5A @ 220VAC/5A @ 24VDC		3A @ 220VAC/3A @ 24VDC	
<b>Rated Max. Inductive Load</b>	2A @ 220VAC/2A @ 24VDC		1.5A @ 220VAC/0.8A @ 24VDC		2A @ 220VAC/2A @ 24VDC		1.5A @ 220VAC/0.8A @ 24VDC	
<b>Minimum Recommended Load</b>	1mA @ 1VDC							
<b>Max. Switching Cap. (Resistive Load)</b>	1,100VA/120W		660VA/72W		1,100VA/120W		660VA/72W	
<b>Max. Switching Cap. (Inductive Load)</b>	440VA/48W		176VA/36W		440VA/48W		176VA/36W	
<b>Max. Contact Rating</b>	250VAC/125VDC				250VAC/125VDC			
<b>Coil Specifications</b>								
<b>Options</b>	LED Indicator				LED Indicator/Diode Protection	LED Indicator	LED Indicator/Diode Protection	
<b>Coil Input Voltage</b>	110/120VAC	220/240VAC	110/120VAC	220/240VAC	24VDC			
<b>Rated Current at 50Hz</b>	9.9/10.8mA	6.2/6.8mA	9.9/10.8mA	6.2/6.8mA	36.9mA			
<b>Rated Current at 60Hz</b>	8.4/9.2mA	5.3/5.8mA	8.4/9.2mA	5.3/5.8mA				
<b>Coil Resistance</b>	4.43k $\Omega$	12.95k $\Omega$	4.43k $\Omega$	12.95k $\Omega$	650 $\Omega$			
<b>Power Consumption</b>	Approx. 0.9W to 1.1W (at 60Hz)				Approx. 0.9W			
<b>Dropout Voltage (% of rated voltage)</b>	Min. 30%				Min. 10%			
<b>Pick-Up Voltage (Must operate voltage)</b>	Max. 80% of the rated coil voltage							
<b>Max. Voltage (Max. continuous voltage)</b>	110% of the rated coil voltage							
<b>Min. Operating Voltage</b>	80% of the rated coil voltage							
<b>General Specifications</b>								
<b>Service Life</b>	Mechanical: AC: Min. 50 million operations; DC: Min. 100 million operations (at operating frequency of 18,000 operations/hour)							
	Electrical: DPDT: Min. 500k operations; 4PDT: Min. 200k operations (at operating frequency of 1,800 operations/hour)							
<b>Operate Time</b>	20ms max							
<b>Release Time</b>	20ms max							
<b>Ambient Temperature</b>	-25° C to 75° C (-13° F to 167° F)							
<b>Ambient Humidity</b>	45% RH to 85% RH							
<b>Contact Material</b>	Fine Silver		Gold-plated Silver		Fine Silver		Gold-plated Silver	
<b>Contact Resistance</b>	50m $\Omega$ max							
<b>Operating Frequency</b>	Mechanical: 18,000 operations/hour; Electrical: 1,800 operations/hour							
<b>Vibration Resistance</b>	10Hz to 55Hz at double amplitude of 1.0mm							
<b>Shock Resistance</b>	1,000m/s <sup>2</sup> (approx. 100G)							
<b>Weight</b>	35g (1.24oz.)							
<b>Agency Approvals and Standards</b>	UL Recognized (#E222847), CE Certified (9667186-9811), CSA Certified (218218)							

# QM Series Wiring Diagrams and Derating Curves

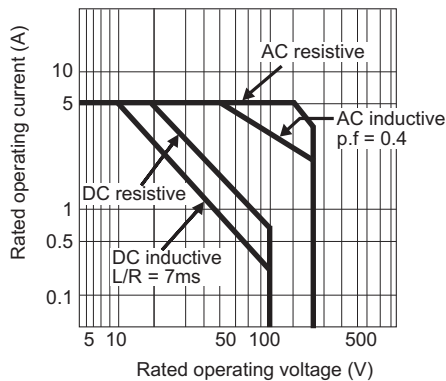
## Wiring diagrams



## Derating curves

### DPDT

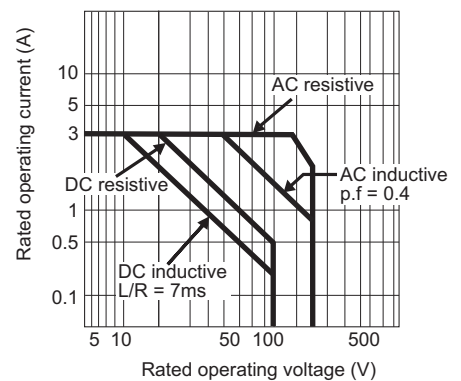
Max. Switching capacity



QM DPDT

### 4PDT

Max. Switching capacity



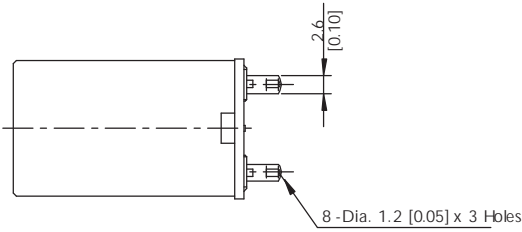
QM 4PDT

# QM Series Dimensional Drawings

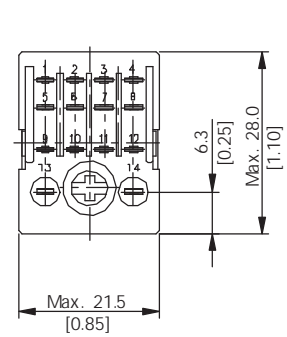
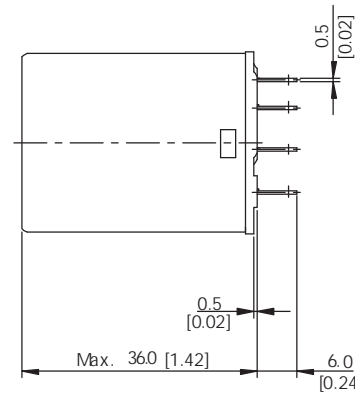
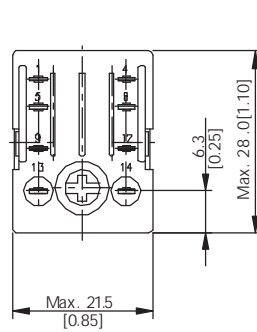
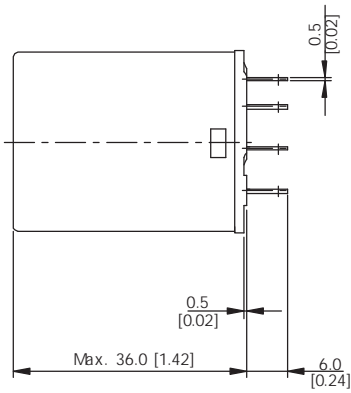
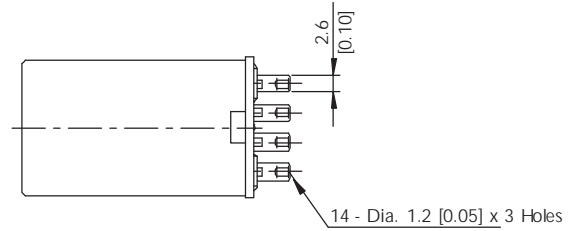
## Dimensions

mm [inches]

**Figure 1**  
**QM2 Series**



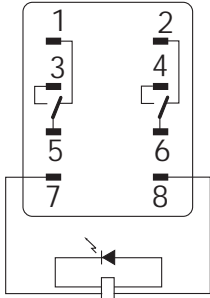
**Figure 2**  
**QM4 Series**



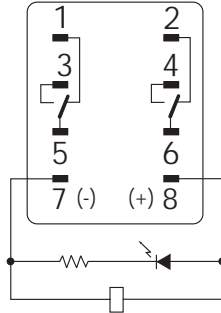
# QL Series Wiring Diagrams and Derating Curves

## Wiring Diagrams

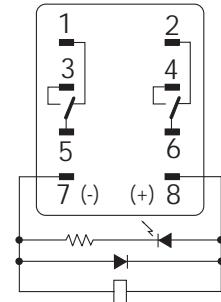
QL2N1-A120  
QL2N1-A220



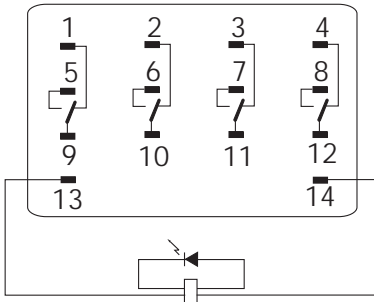
QL2N1-D24



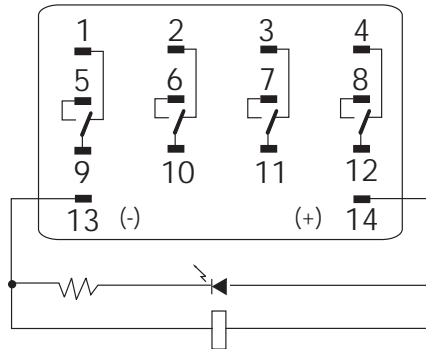
QL2X1-D24



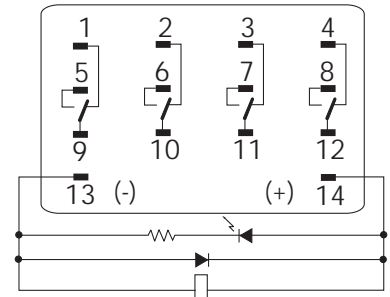
QL4N1-A120  
QL4N1-A220



QL4N1-D24



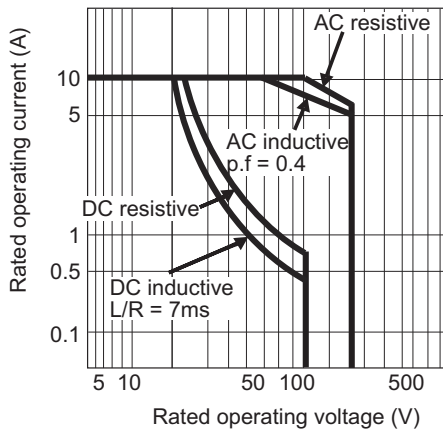
QL4X1-D24



## Derating Curves

### 2PDT

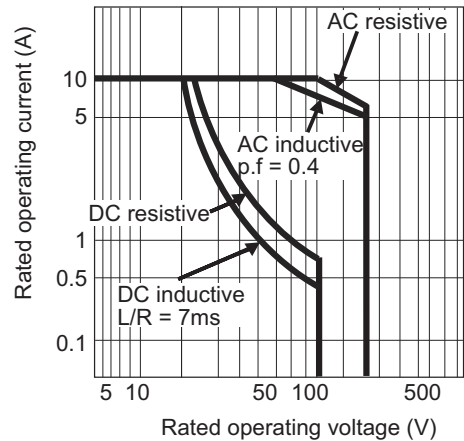
Max. Switching capacity



QL 2PDT

### 4PDT

Max. Switching capacity



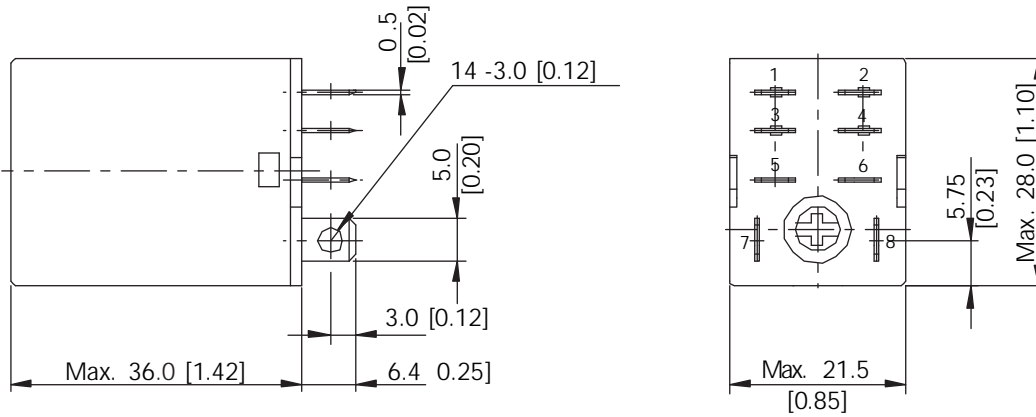
QL 4PDT

# QL Series Dimensional Drawings

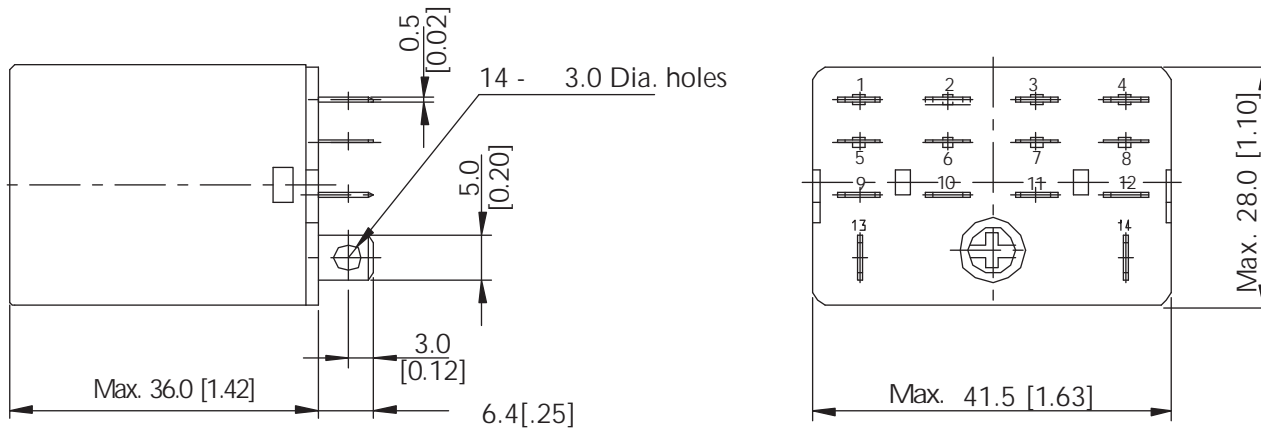
## Dimensions

mm [inches]

**Figure 1  
QL2**



**Figure 2  
QL4**



# Sockets for QL/QM Series Relays

**SQL08D**



Din-rail mounting, DPDT, for use with QL2 series relays

<--->

**SQL14D**



Din-rail mounting, 4PDT, for use with QL4 series relays

<--->

**SQM08D**



Din-rail mounting, DPDT, for use with QM2 series relays

<--->

**SQM14D**



Din-rail mounting, 4PDT, for use with QM4 series relays

<--->

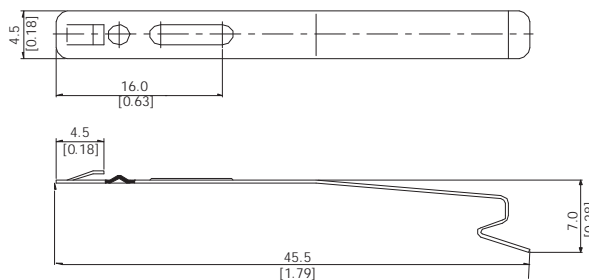
## Holding Clips

Holding clips for the QL2, QL4, QM2 and QM4 series relays can be removed by pushing the side of the inserting hole with a sharp object.

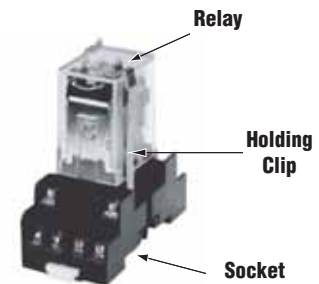
**Note:** Order sockets separately; holding clips are included with sockets.

### Holding Clip Dimensions mm [in]

Holding clip for QL4 series relays is included with SQL14D sockets.

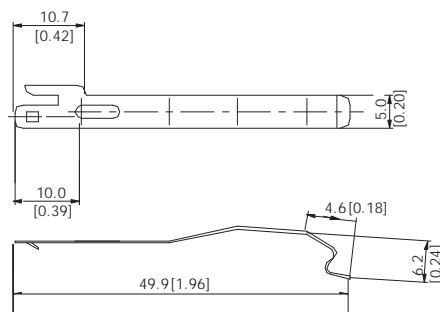


Insert holding clip into the slots provided on the socket.



### Holding Clip Dimensions mm [in]

Holding clip for QL2, QM2 and QM4 series relays is included with SQL08D, SQM08D and SQM14D sockets.



# Socket Dimensions for QL/QM Series Relays

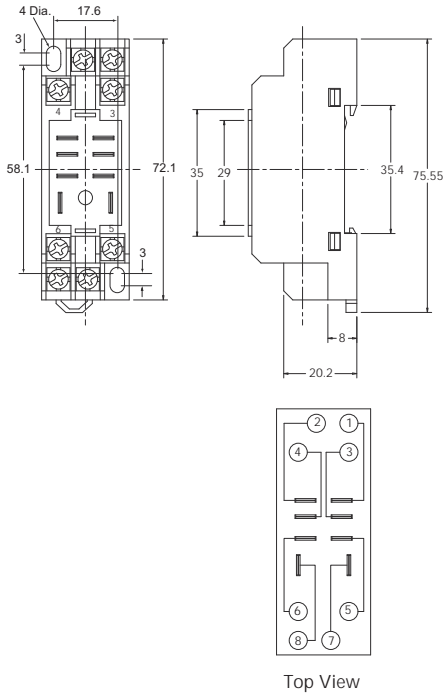


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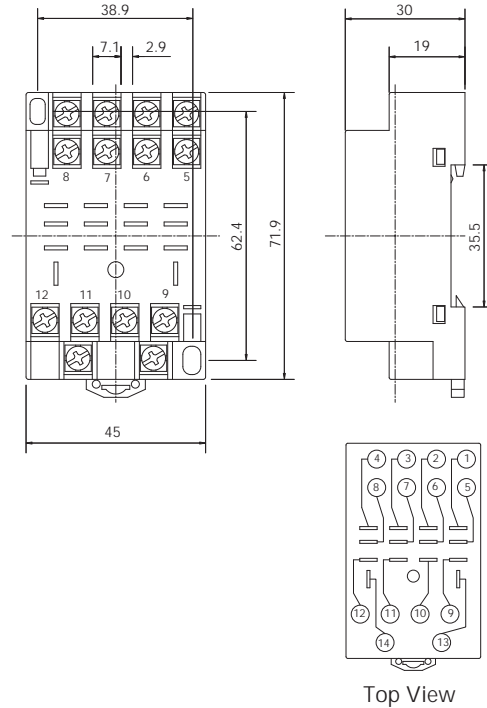
## Dimensions

mm

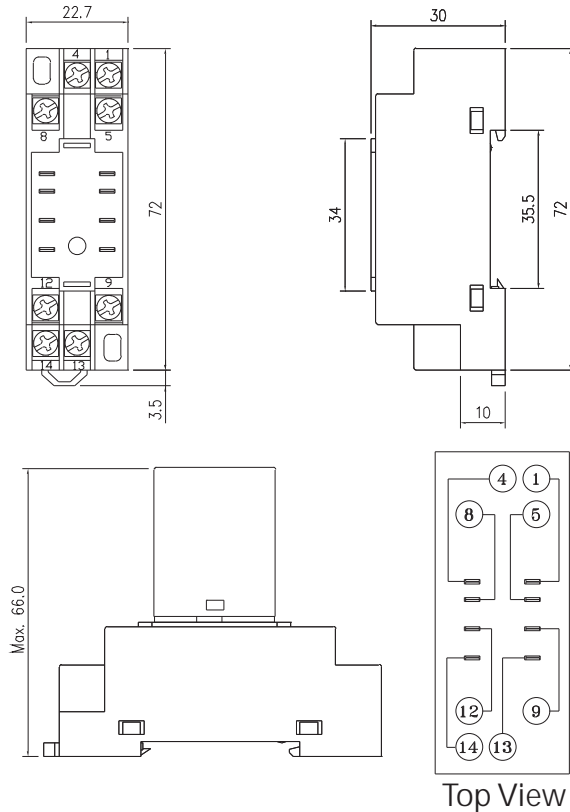
**Figure 3**  
**SQL08D (for QL2 Series Relays)**



**Figure 4**  
**SQL14D (for QL4 Series Relays)**



**Figure 5**  
**SQM08D (for QM2 Series Relays)**



**Figure 6**  
**SQM14D (for QM4 Series Relays)**

