

# Electromechanical Relay Selection Guide



Specification	QL Series	QM Series	RS Series Card Relays
<b>Coil Voltages</b>	110/120VAC, 220VAC, 24VDC	110/120VAC, 220VAC, 24VDC	24VDC
<b>Configuration</b>	2PDT, 4PDT	2PDT, 4PDT	SPST (up to six relays)
<b>Contact Rating</b>	10A	5A DPDT ; 3A 4PDT	5A
<b>Base Socket</b>	8 or 14 pin spade terminal	8 or 14 pin spade terminal	-
<b>Agency Approvals</b>	UL Recognized (#E222847), CE Certified (9667186-9811), CSA Certified (218218)	UL Recognized (#E222847), CE Certified (9667186-9811), CSA Certified (218218)	UL Recognized (E44592), CSA (LR20479) TUV (R95551729)
<b>Prices starting at</b>	<--->	<--->	<--->

## QL Series Electromechanical Relay Selection Guide



QL 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
- ARC Barrier equipped
- Silver Cadmium Oxide contact
- High dielectric strength (1,800 VAC)
- High reliability and long life
- Ultra-high sensitivity with quick response time (25 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 available on 24 VDC models, which protects contacts and electronic components from back EMF
- UL recognized, CE certified, CSA approval pending
- DPDT and 4PDT models

• **ORDER SOCKET SEPARATELY**

### QL Series Selection Guide

Part Number	Price	Coil Voltage	Configuration	Contact Rating	Dimensions (see page 24-7)	Relay Socket Part Number	Price	Dimensions (see page 24-13)
<b>QL2N1-A120</b>	<--->	110/120VAC	2PDT	10A	Figure 1	<b>SQL08D</b>	<--->	Figure 3
<b>QL4N1-A120</b>	<--->		4PDT	10A	Figure 2	<b>SQL14D</b>	<--->	Figure 4
<b>QL2N1-A220</b>	<--->	220VAC	2PDT	10A	Figure 1	<b>SQL08D</b>	<--->	Figure 3
<b>QL4N1-A220</b>	<--->		4PDT	10A	Figure 2	<b>SQL14D</b>	<--->	Figure 4
<b>QL2N1-D24</b>	<--->	24VDC	2PDT	10A	Figure 1	<b>SQL08D</b>	<--->	Figure 3
<b>QL2X1-D24</b>	<--->		2PDT	10A	Figure 1	<b>SQL08D</b>	<--->	Figure 3
<b>QL4N1-D24</b>	<--->		4PDT	10A	Figure 2	<b>SQL14D</b>	<--->	Figure 4
<b>QL4X1-D24</b>	<--->		4PDT	10A	Figure 2	<b>SQL14D</b>	<--->	Figure 4



Company Information

Systems Overview

Programmable Controllers

Field I/O

Software

C-more &amp; other HMI

Drives

Soft Starters

Motors &amp; Gearbox

Steppers/Servos

Motor Controls

Proximity Sensors

Photo Sensors

Limit Switches

Encoders

Current Sensors

Pressure Sensors

Temperature Sensors

Pushbuttons/Lights

Process

Relays/Timers

Comm.

Terminal Blocks &amp; Wiring

Power

Circuit Protection

Enclosures

Tools

Pneumatics

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Part # Index

# QL Series Electromechanical Relay Specifications

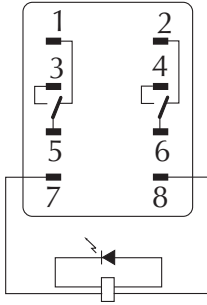
QL Series Specification Table									
Part Numbers	QL2N1-A120	QL2N1-A220	QL4N1-A120	QL4N1-A220	QL2N1-D24	QL2X1-D24	QL4N1-D24	QL4X1-D24	
<b>Contact Specifications</b>									
<b>Current Rating</b>	10A								
<b>Contact Type</b>	DPDT		4PDT		DPDT		4PDT		
<b>Terminal Type</b>	Spade Plug-In Socket								
<b>Rated Max. Resistive Load</b>	10A@110VAC/10A@24VDC								
<b>Rated Max. Inductive Load</b>	7.5A@110VAC/ 5A@24VDC								
<b>Minimum Recommended Load</b>	1mA @ 5VDC								
<b>Max. Switching Cap. (Resistive Load)</b>	1,100VAC/240W								
<b>Max. Switching Cap. (Inductive Load)</b>	825VAC/120W								
<b>Max. Contact Rating</b>	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	17/19mA	11.5/13.1mA	36.9mA		69mA		
<b>Rated Current at 60Hz</b>	8.4/9.2mA	5.3/5.8mA	18/16.4mA	9.8/11.2mA	36.9mA		69mA		
<b>Coil Resistance</b>	4.43kΩ	12.95kΩ	2.2kΩ	6.7kΩ	650Ω		350Ω		
<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>	25ms max								
<b>Release Time</b>	25ms max								
<b>Ambient Temperature</b>	-25° C to 70° C (-13° F to 158° F)								
<b>Ambient Humidity</b>	45% to 85% Relative Humidity								
<b>Contact Material</b>	Silver Cadmium Oxide								
<b>Contact Resistance</b>	50mΩ 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)								

# QL Series Wiring Diagrams and Derating Curves

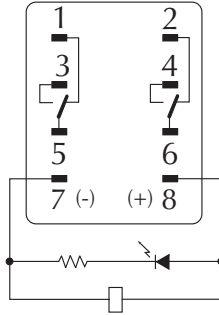
## Wiring Diagrams

QL2N1-A120

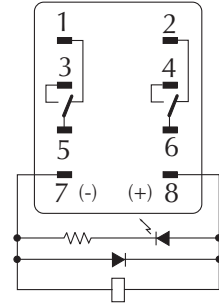
QL2N1-A220



QL2N1-D24

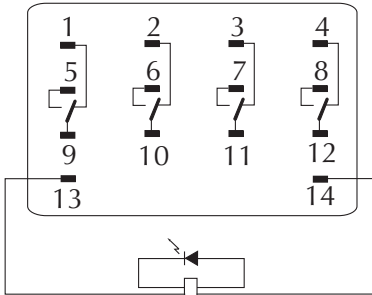


QL2X1-D24

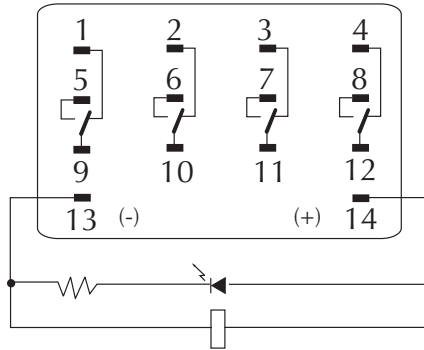


QL4N1-A120

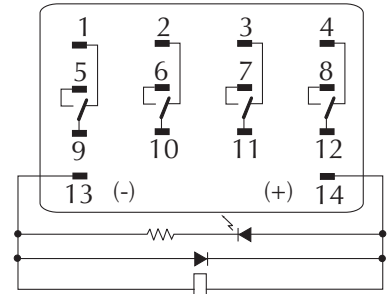
QL4N1-A220



QL4N1-D24



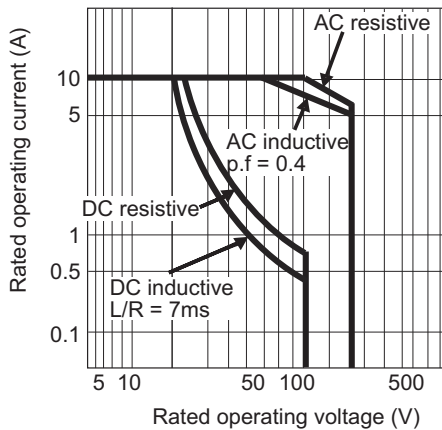
QL4X1-D24



## Derating Curves

### 2PDT

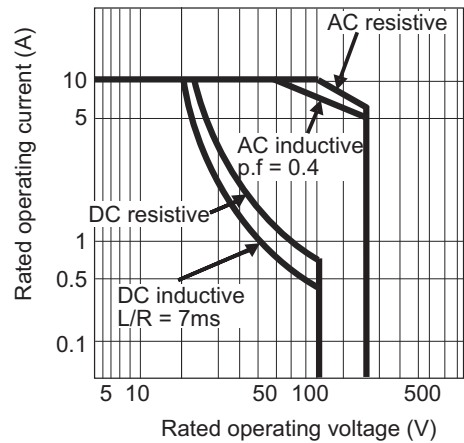
Max. Switching capacity



QL 2PDT

### 4PDT

Max. Switching capacity



QL 4PDT

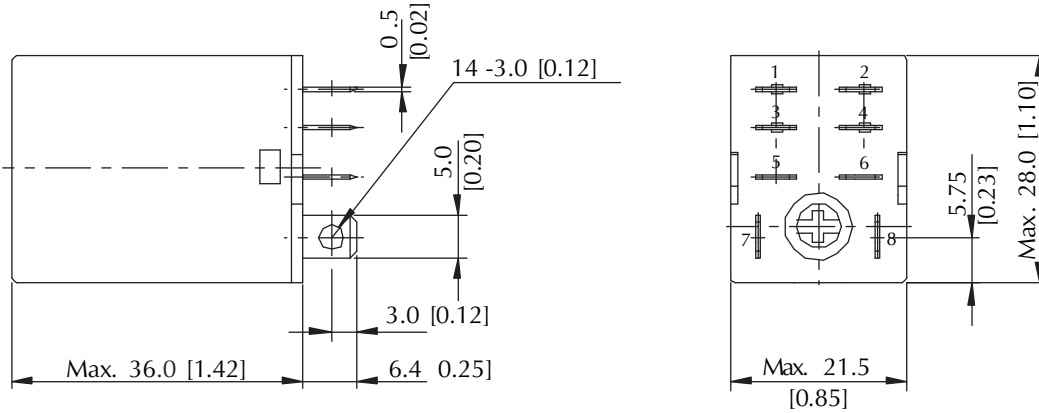


# QL Series Dimensional Drawings

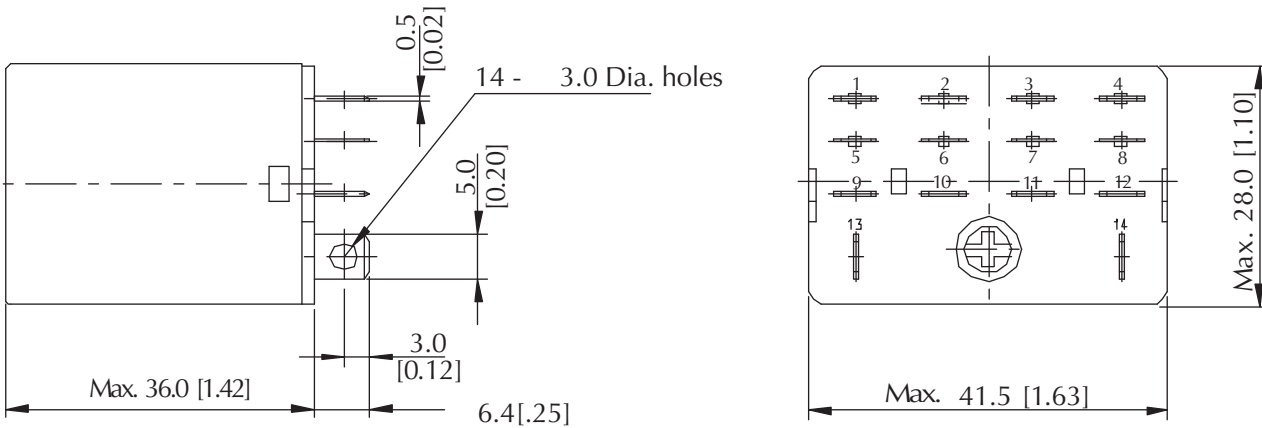
## Dimensions

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

<--->

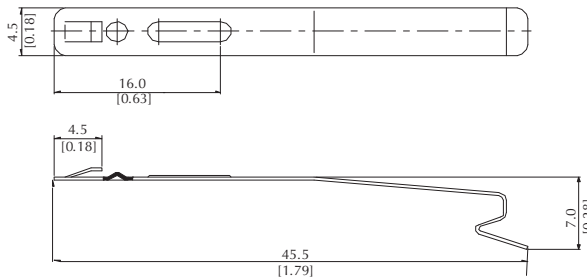
## Holding Clips

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.

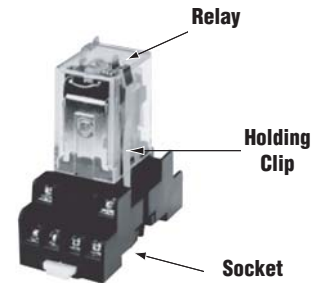
**Note:** Order sockets separately; holding clips are included with sockets.

### Holding Clip Dimensions mm [in]

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

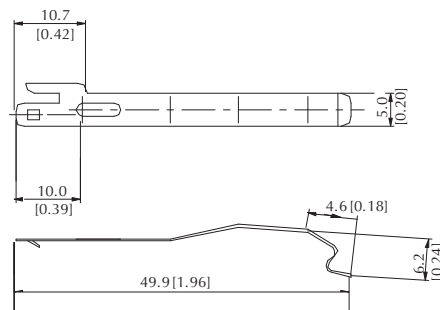


Insert holding clip into the slots provided on the socket.



### 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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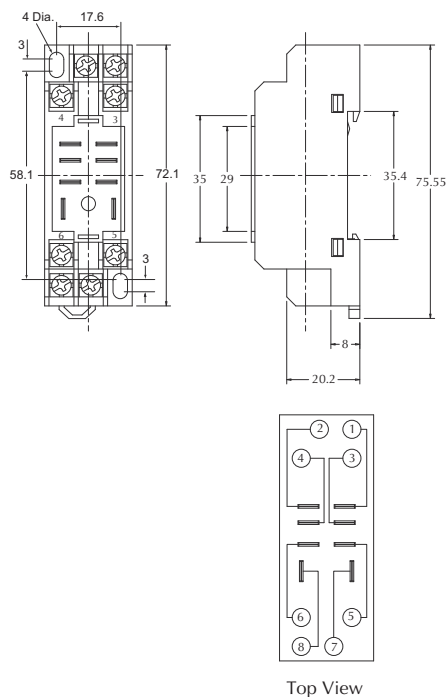
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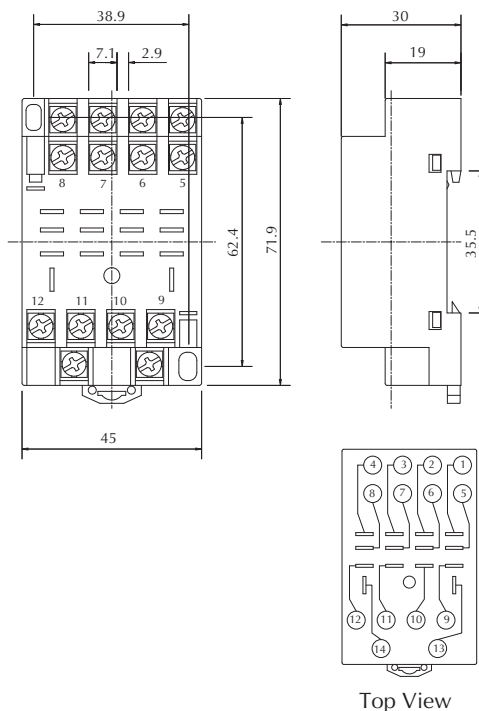
## Dimensions

mm

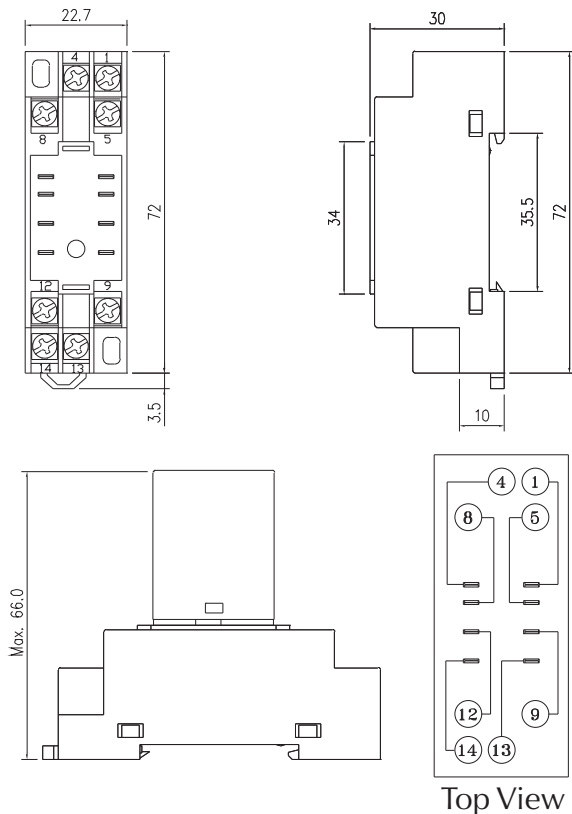
**Figure 3**  
**SQL08D (for QL2 Series Relays)**



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



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



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

