

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)
QL2N1-A120	\$10.00	110/120VAC	2PDT	10A	Figure 1	SQL08D	\$4.00	Figure 3
QL4N1-A120	\$12.00		4PDT	10A	Figure 2	SQL14D	\$4.50	Figure 4
QL2N1-A220	\$10.00	220VAC	2PDT	10A	Figure 1	SQL08D	\$4.00	Figure 3
QL4N1-A220	\$12.50		4PDT	10A	Figure 2	SQL14D	\$4.50	Figure 4
QL2N1-D24	\$10.00	24VDC	2PDT	10A	Figure 1	SQL08D	\$4.00	Figure 3
QL2X1-D24	\$12.00		2PDT	10A	Figure 1	SQL08D	\$4.00	Figure 3
QL4N1-D24	\$11.50		4PDT	10A	Figure 2	SQL14D	\$4.50	Figure 4
QL4X1-D24	\$15.50		4PDT	10A	Figure 2	SQL14D	\$4.50	Figure 4

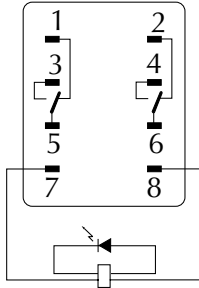
QL Series Electromechanical Relay Specifications

QL Series Specification Table								
Part Numbers	QL2N1-A120	QL2N1-A220	QL4N1-A120	QL4N1-A220	QL2N1-D24	QL2X1-D24	QL4N1-D24	QL4X1-D24
Contact Specifications								
Current Rating	10A							
Contact Type	DPDT	4PDT		DPDT		4PDT		
Terminal Type	Spade Plug-In Socket							
Rated Max. Resistive Load	10A@110VAC/10A@24VDC							
Rated Max. Inductive Load	7.5 A@110VAC/ 5A@24VDC							
Minimum Recommended Load	1mA @ 5VDC							
Max. Switching Cap. (Resistive Load)	1,100VAC/240W							
Max. Switching Cap. (Inductive Load)	825VAC/120W							
Max. Contact Rating	250VAC/125VDC							
Coil Specifications								
Options	LED Indicator				LED Indicator/ Diode Protection	LED Indicator	LED Indicator/ Diode Protection	
Coil Input Voltage	110/120VAC	220/240VAC	110/120VAC	220/240VAC	24VDC			
Rated Current at 50Hz	9.9/10.8 mA	6.2/6.8 mA	17/19 mA	11.5/13.1 mA	36.9 mA		69mA	
Rated Current at 60Hz	8.4/9.2 mA	5.3/5.8 mA	18/16.4 mA	9.8/11.2 mA	36.9 mA		69mA	
Coil Resistance	4.43k Ω	12.95k Ω	2.2k Ω	6.7k Ω	650 Ω		350 Ω	
Power Consumption	Approx. 0.9W to 1.1W (at 60Hz)				Approx. 0.9W			
Dropout Voltage (% of rated voltage)	Min. 30%				Min. 10%			
Pick-Up Voltage (Must operate voltage)	Max. 80% of the rated coil voltage							
Max. Voltage (Max. continuous voltage)	110% of the rated coil voltage							
Min. Operating Voltage	80% of the rated coil voltage							
General Specifications								
Service Life	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)							
Operate Time	25ms max							
Release Time	25ms max							
Ambient Temperature	-25° C to 70° C (-13° F to 158° F)							
Ambient Humidity	45% to 85% Relative Humidity							
Contact Material	Silver Cadmium Oxide							
Contact Resistance	50m Ω max.							
Operating Frequency	Mechanical 18,000 operations/hour; Electrical 1,800 operations/hour							
Vibration Resistance	10Hz to 55Hz at double amplitude of 1.0mm							
Shock Resistance	1,000m/s ² (approx. 100G)							
Weight	35g (1.24oz.)							
Agency Approvals and Standards	UL Recognized (#E222847), CE Certified (9667186-9811), CSA Certified (218218)							

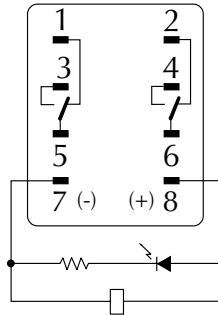
QL Series Wiring Diagrams and Derating Curves

Wiring Diagrams

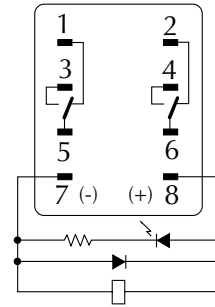
QL2N1-A120
QL2N1-A220



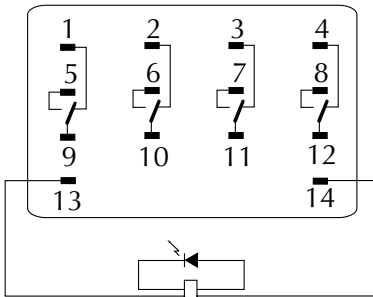
QL2N1-D24



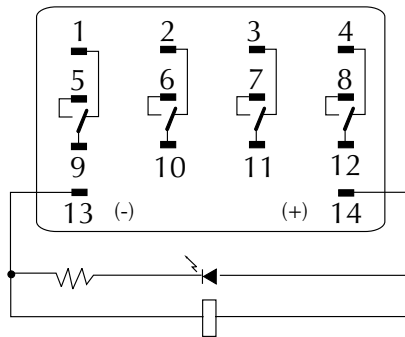
QL2X1-D24



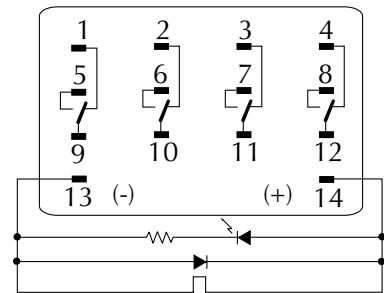
QL4N1-A120
QL4N1-A220



QL4N1-D24



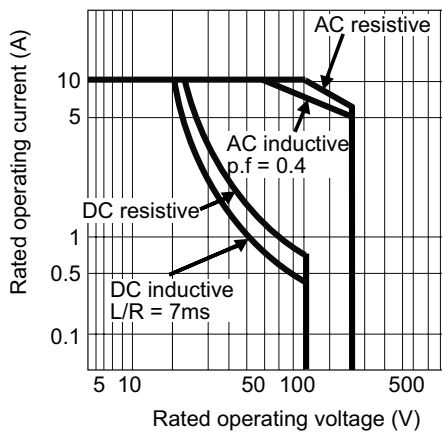
QL4X1-D24



Derating Curves

2PDT

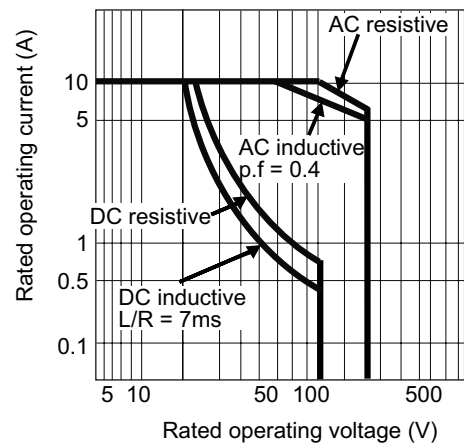
Max. Switching capacity



QL 2PDT

4PDT

Max. Switching capacity



QL 4PDT

QL Series Dimensional Drawings

Dimensions

mm [inches]

Figure 1
QL2

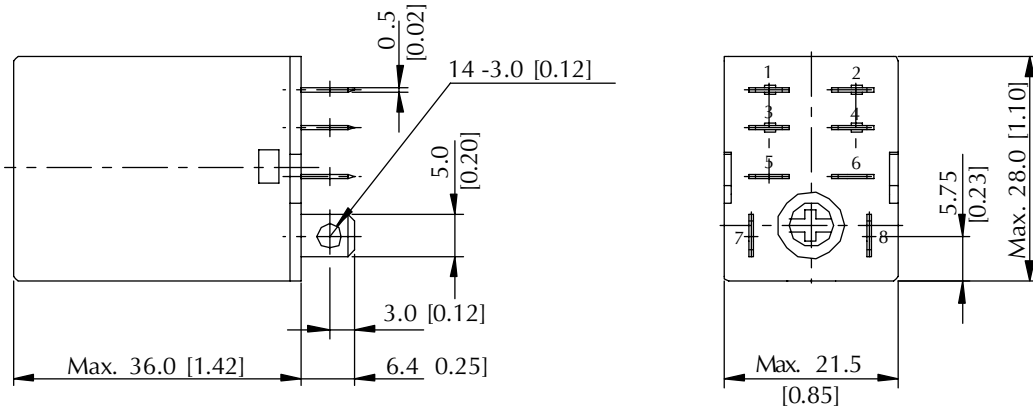
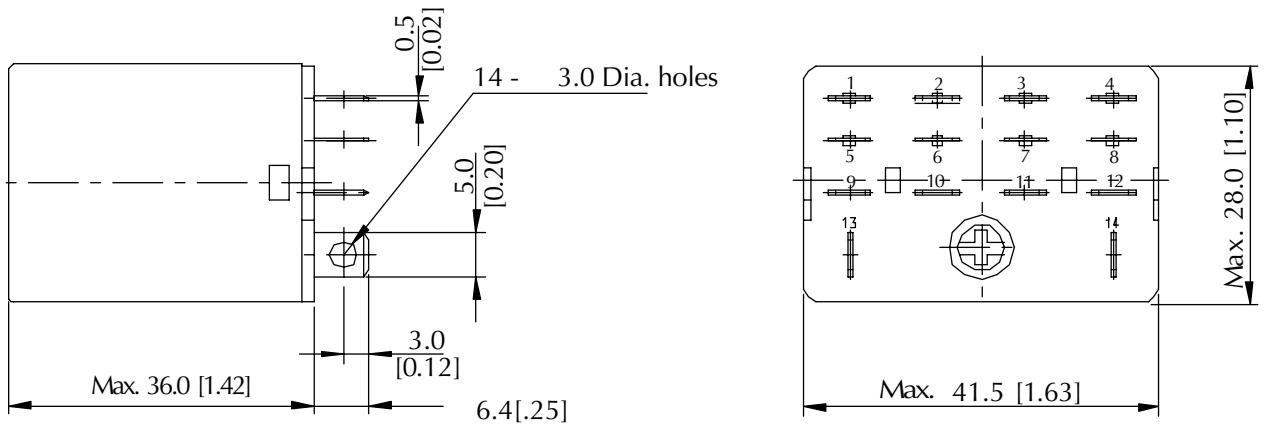


Figure 2
QL4



Sockets for QL/QM Series Relays

SQL08D



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

\$4.00

SQL14D



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

\$4.50

SQM08D



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

\$3.25

SQM14D



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

\$3.25

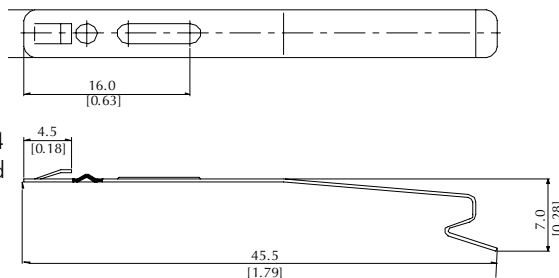
Holding Clips

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.

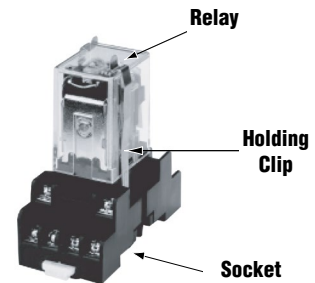
Note: Order sockets separately; holding clips are included with sockets.

Holding Clip Dimensions mm [in]

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

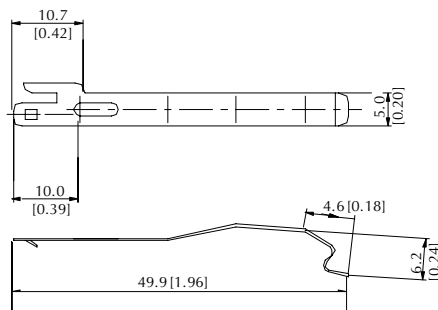


Insert holding clip into the slots provided on the socket.



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

Dimensions

mm

Figure 3
SQL08D (for QL2 Series Relays)

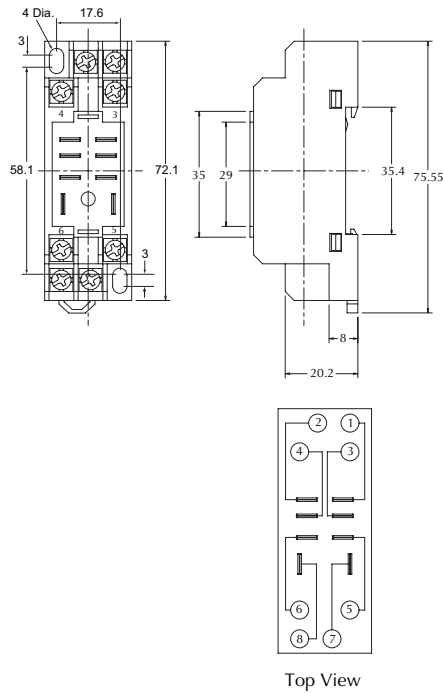


Figure 4
SQL14D (for QL4 Series Relays)

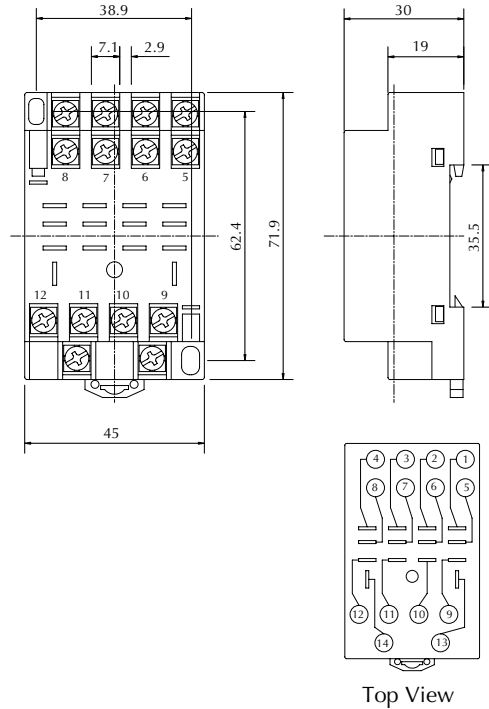


Figure 5
SQM08D (for QM2 Series Relays)

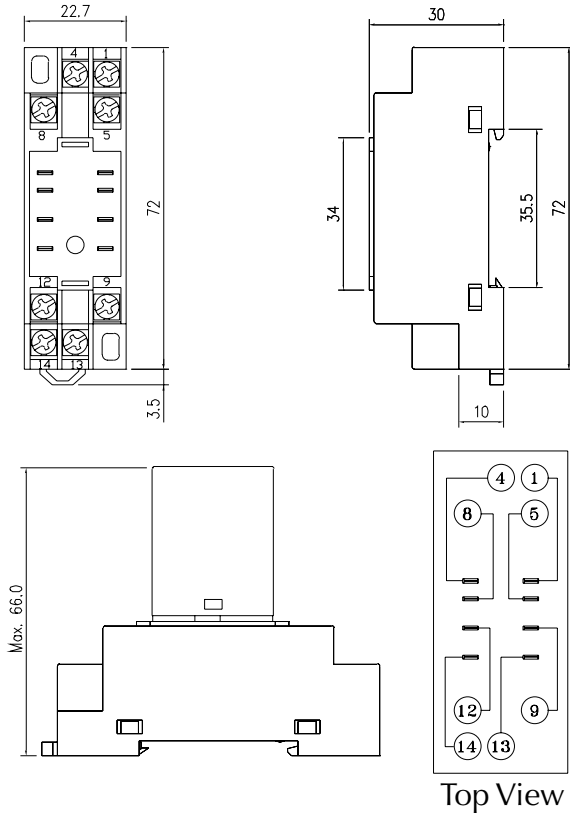


Figure 6
SQM14D (for QM4 Series Relays)

