Choosing a Proper Relay Amperage
How to calculate for the Correct Relay

Relay Ratings and Limits
Relays often have two ratings: AC and DC. These rating indicate how much power can be switched through the relays. This does not necessarily tell you what the limits of the relay are. For instance, a 5 Amp relay rated at 125VAC can also switch 2.5 Amps at 250VAC. Similarly, a 5 Amp relay rated at 24VDC can switch 2.5 Amps at 48VDC, or even 10 Amps at 12VDC.

Volts x Amps = Watts - Never Exceed Watts!
An easy way to determine the limit of a relay is to multiply the rated Volts times the rated Amps. This will give you the total watts a relay can switch. Every relay will have two ratings: AC and DC. You should determine the AC watts and the DC watts, and never exceed these ratings.

Example Calculations

<table>
<thead>
<tr>
<th>AC Volts x AC Amps = AC Watts</th>
<th>DC Volts x DC Amps = DC Watts</th>
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<tbody>
<tr>
<td>Example: A 5 Amp Relay is Rated at 250 Volts AC. 5 x 250 = 1,250 AC Watts</td>
<td>Example: A 5 Amp Relay is Rated at 24 Volts DC. 5 x 24 = 120 DC Watts</td>
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<td>If you are switching AC Devices, Make Sure the AC Watts of the Device you are Switching DOES NOT Exceed 1,250 when using a 5A Relay.</td>
<td>If you are switching DC Devices, Make Sure the DC Watts of the Device you are Switching DOES NOT Exceed 120 when using a 5A Relay.</td>
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Resistive and Inductive Loads
Relays are often rated for switching resistive loads. Inductive loads can be very hard on the contacts of a relay. A resistive load is a device that stays electrically quiet when powered up, such as an incandescent light bulb. An inductive load typically has a violent startup voltage or amperage requirement, such as a motor or a transformer.

Startup and Runtime Loads
Inductive loads typically require 2-3 times the runtime voltage or amperage when power is first applied to the device. For instance, a motor rate at 5 Amps, 125 VAC will often require 10-15 amps just to get the shaft of the motor in motion. Once in motion, the the motor may consume no more than 5 amps. When driving these types of loads, choose a relay that exceeds the initial requirement of the motor. In this case, a 20-30 Amp relay should be used for best relay life.