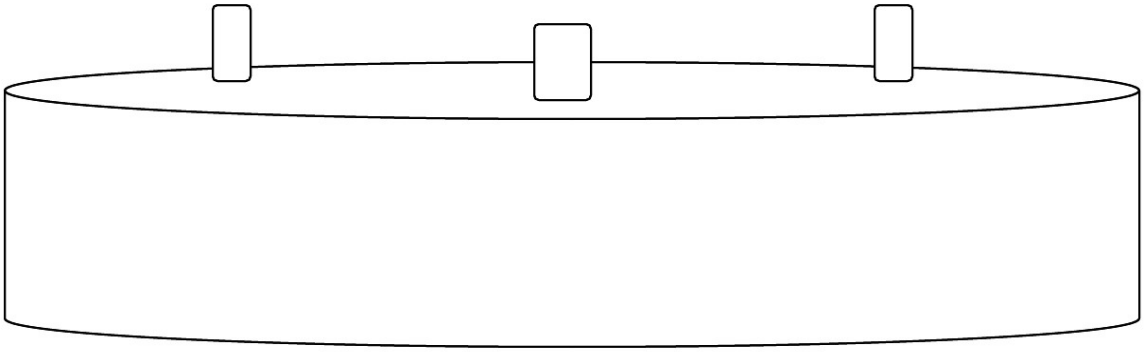
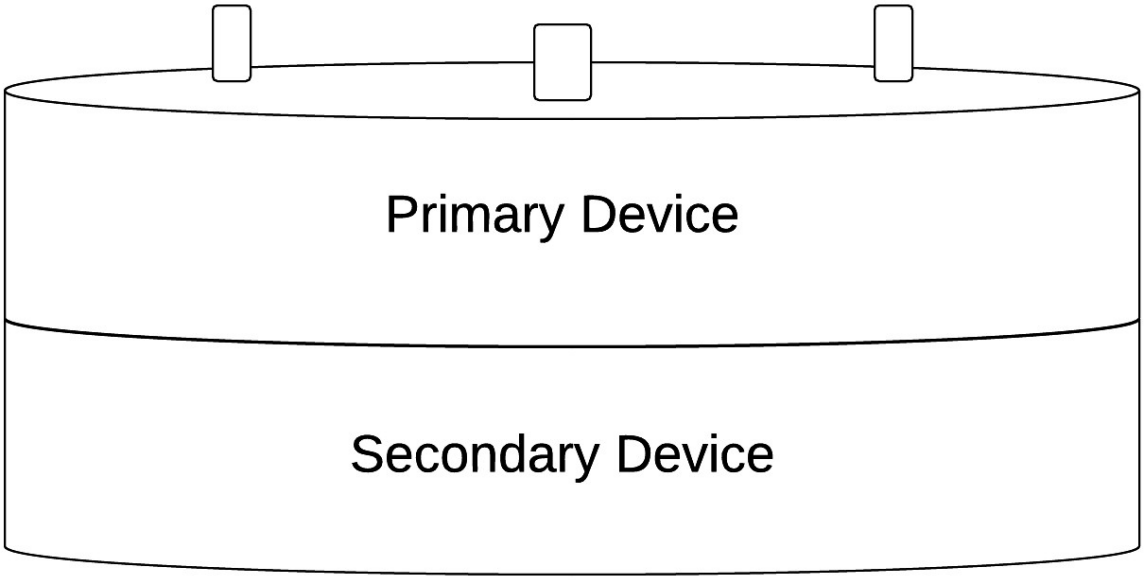
Stackable Capacitor
The general idea is to encase a capacitor into a package that allows for general use of the device by itself and allow for combining two or more packaged devices together so that the two (or more) differing capacitors could be used in parallel, in series or separately as a dual.

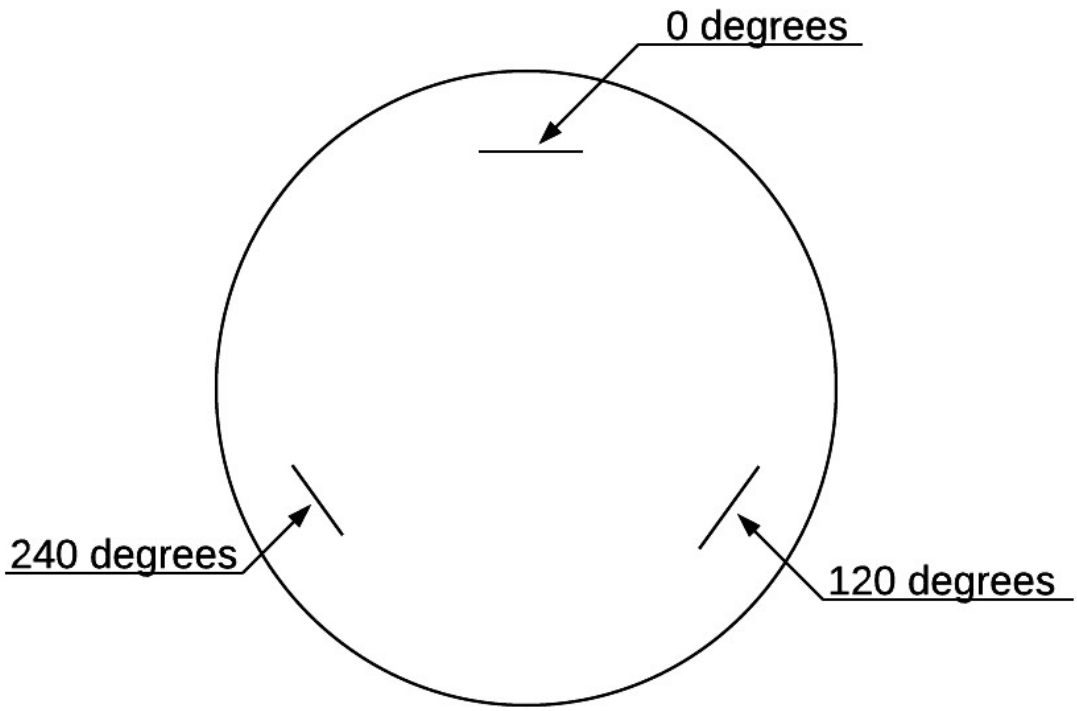
Packaging
The device shall be in a cylindrical shape and the top shall be a flat side containing the male terminals protruding for access.



When devices are connected together (stacked) the top device is termed the Primary Device and the bottom device is termed the Secondary Device.
Note: the shape of the device is not predetermined, if it is more cost effective or easier to manufacture a device that is not cylindrical, oval as an example, then other shapes will be considered.

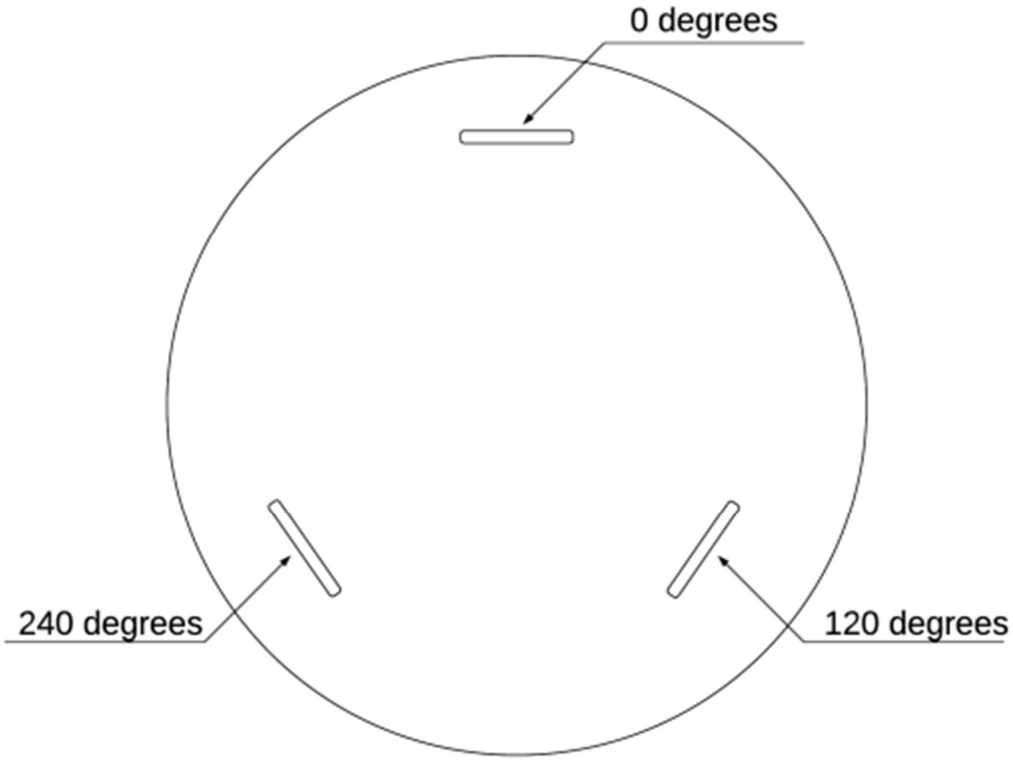


The device shall have three quick connect male terminals. Two of these terminals are for the primary device capacitor connections with the third, a pass through, used as a connection for the secondary device if one exists. These three blades shall protrude from the top of the device and be at 120 degrees from each other, center to center measurement.
Note: as "quick connect" is an industry standard the measurements and material used for the male and female terminals will not be identified in this document.



Top of the device shown with male terminals.

Each of these three male terminals shall be internally and electronically connected to companion quick connect female terminals on the bottom of the device. Such that two devices may be connected together via these quick connect terminals.



Bottom of device shown with female terminals. Note, the female terminals are flush with the bottom of the device.

Each individual male terminal on the top of the device shall be connected to one and only one female terminal on the bottom of the device. Each individual male terminal shall be connected to the female terminal directly below itself in the device. Preferably the companion terminals (male and female) are one solid piece for electrical connectivity.

The following drawing shows the possible shape of the terminal part. Notice that the part has the male terminal, female terminal and place for connection within the capacitor. This drawing is included to demonstrate that the terminals and capacitor connection are all one piece. This is subject to the manufacturers expertise in the area.

A mounting mechanism would be beneficial. Possible mechanisms include use of the non-capacitor connected terminal as a metal tab mounting bracket or a tab molded as part of the housing, however, the devices must be stackable.

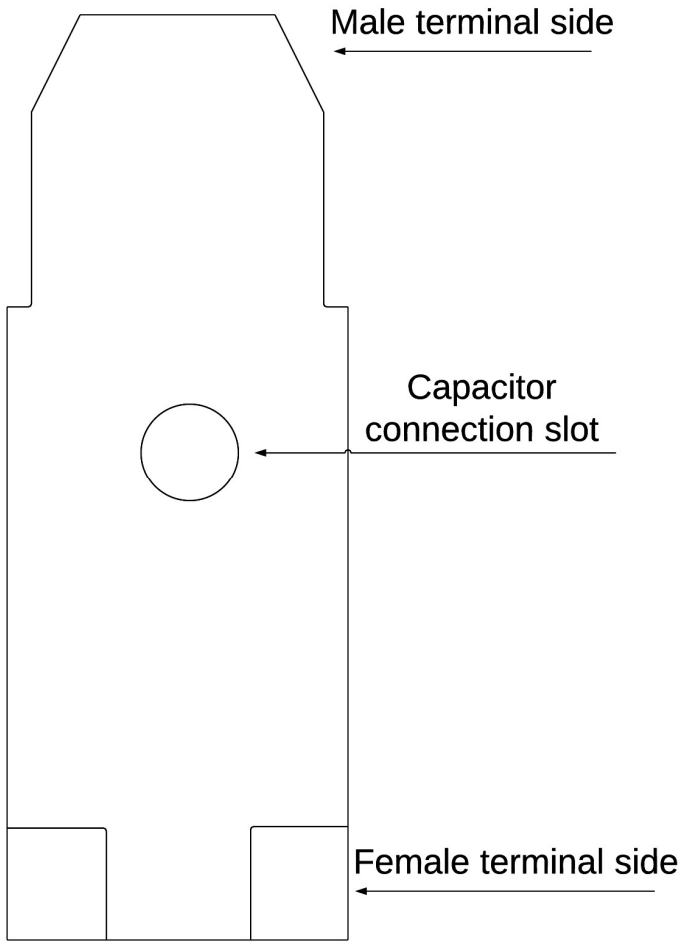
The placement of the terminals relative to the device shall be accessible for the user and should be made convenient for manufacturing, therefore their position is not identified in this document.

The package height and diameter is to be determined based on the contents of the device hence their dimensions are not identified in this document.

It is anticipated that typical operating temperature ranges, capacitance tolerance ranges, Available Fault Current, UL and RoHS requirements will be met.

Initial voltage support shall be 370 with possible 440 support on future revisions.

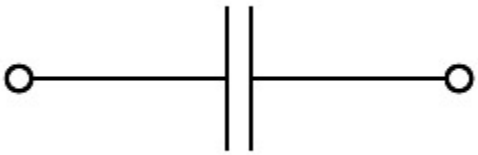
There will be markings on the device as yet to be determined.



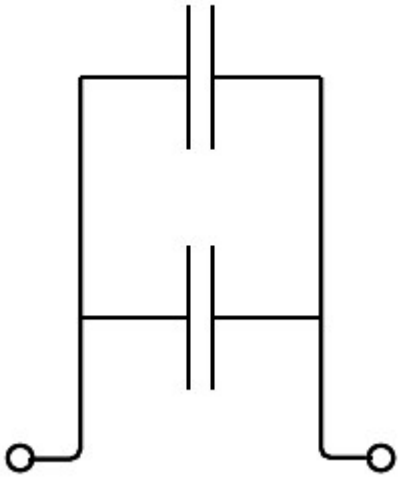
Electrical Diagrams

These are non-polarized capacitors.

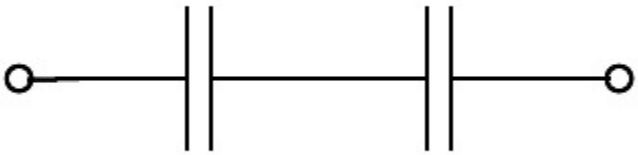
One capacitor by itself



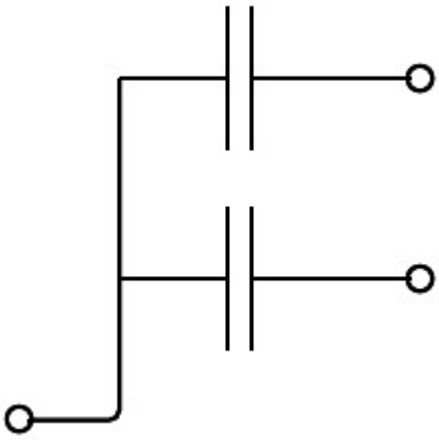
Two capacitors in parallel



Two capacitors in series



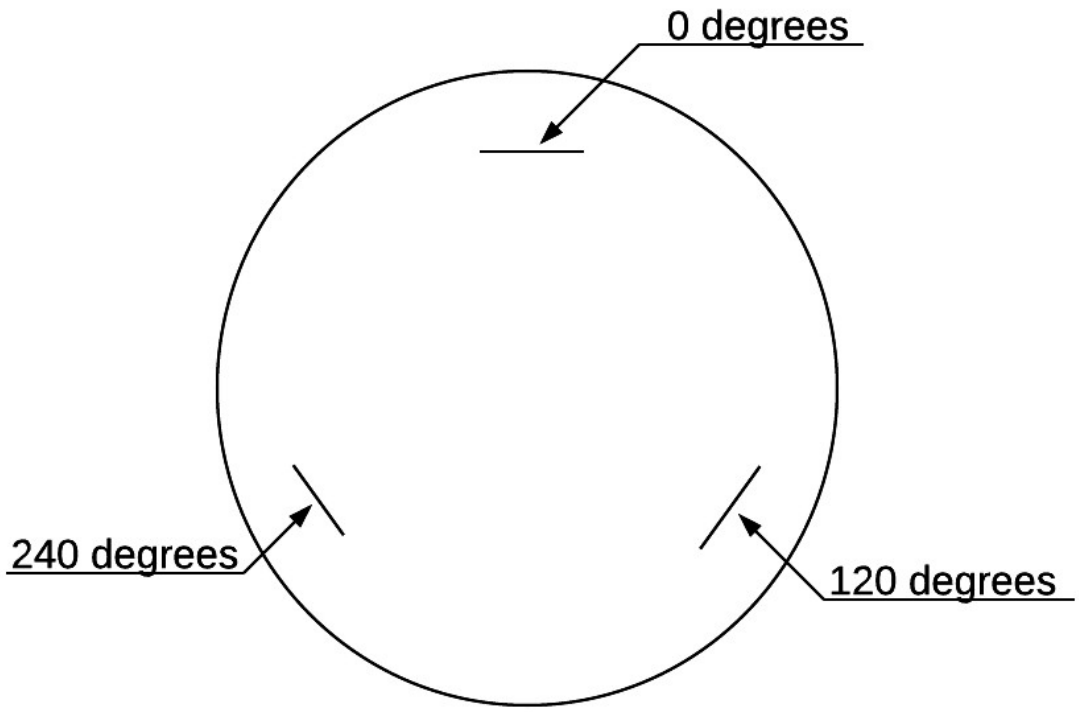
Two capacitors separated, as a dual



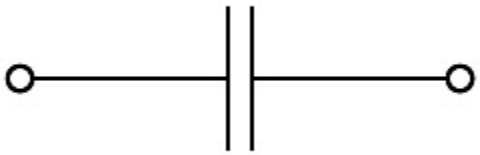
Assembly & Wiring
This section will describe how to assemble and wire the device.

For descriptions sake let's label the male terminals. A single capacitor has three male terminals. Since these are non-polarized capacitors we will name the terminals connected to the capacitor Term1 & Term2. One terminal is not connected to the capacitor and is named Passthru.

For this description, with no rotation, Term 1 is at 0 degrees, Term2 at 120 degrees and Passthru at 240 degrees.

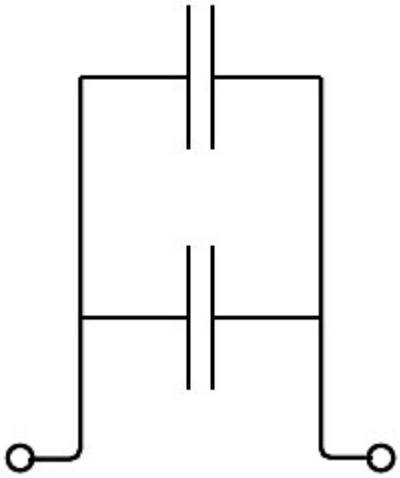


Single Capacitor
A single capacitor would be used by connecting Term1 and Term2. Only two terminals would be utilized in the connection to the circuit.

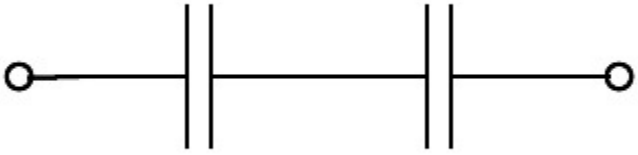


Capacitors in Parallel
Two capacitors in parallel would require stacking capacitors with no rotation for either. Only two terminals would be utilized in the connection to the circuit, the Primary devices Term1 and Term2 terminals. The Secondary devices Term1 male terminal would be plugged into the Primary devices Term1 female receptacle, and so on with the other two terminals.

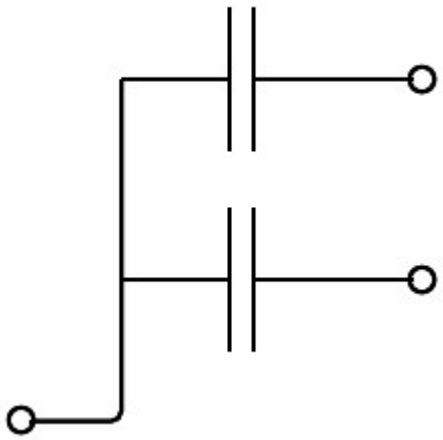
One note, any number of capacitors could be connected with this method.



Capacitors in Series
Two capacitors in series requires the Secondary capacitor to be rotated 120 degrees clockwise such that the Secondary Passthru male terminal plugs into the Primary Term1 female receptacle, the Secondary Term1 male terminal plugs into the Primary Term2 female receptacle and the Secondary Term2 male terminal plugs into the Primary Passthru female receptacle. Only two terminals would be utilized in the connection to the circuit, the Primary devices Term1 and Passthru terminals.



Capacitors Separated, as a Dual
Two capacitors separated acting as a dual requires the Secondary capacitor to be rotated 120 degrees clockwise such that the Secondary Passthru male terminal plugs into the Primary Term1 female receptacle, the Secondary Term1 male terminal plugs into the Primary Term2 female receptacle and the Secondary Term2 male terminal plugs into the Primary Passthru female receptacle. All terminals would be utilized in the connection to the circuit, the common input would be connected to Primary Term2, Primary output connected to Term1 and Secondary output connected to the Primary Passthru terminal.



Double or Triple Spade
The Term1 male terminal shall have a double or triple spade so that the user may connect multiple wires to the device. In turn this means the Term1 female receptacle and the Term2 female receptacle must have double or triple receptacles to plug in the Term1 male terminal in 0 and 120 degree clockwise rotations.

Capacitance
Capacitor sizes supported.

- Capacitance µF
- 2.5
- 5
- 10
- 20
- 30