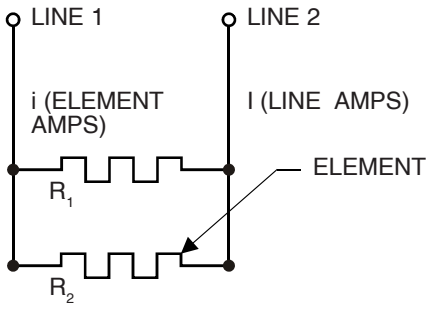
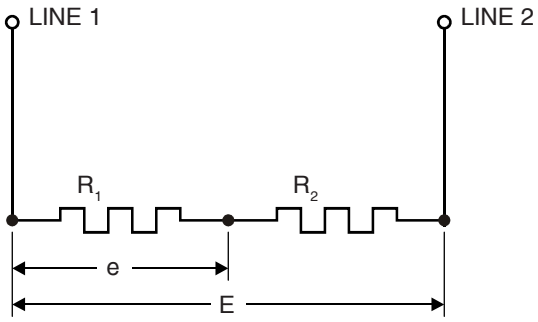
WIRING CONFIGURATIONS AND DIAGRAMS

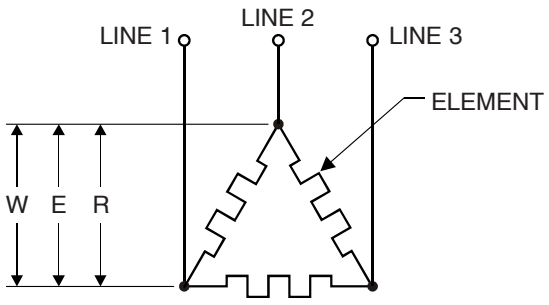
These wiring configurations are provided to assist in the wiring of heating elements in parallel, series and 3-phase (Delta or Wye)



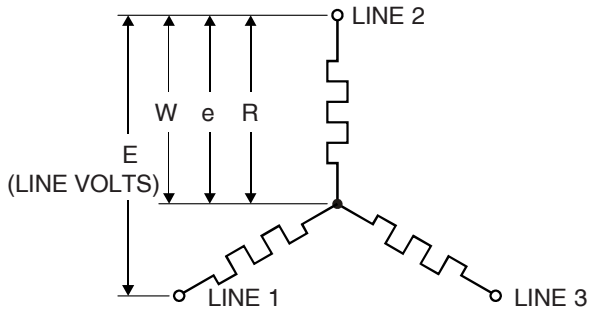
PARALLEL One or more elements wired across two line wires. Element volts equal line volts. Total power is equal to sum of watts in each element. Line amps equal sum of current of each element.



SERIES Two or more elements or equal resistance wired together and across line wires. Element volts equal line volts divided by number of elements. Total power is equal to sum of watts of elements. Line amps equal current thru each element.

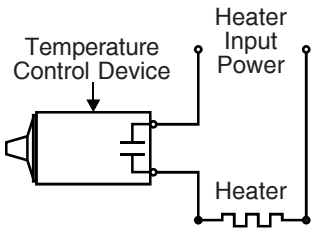


DELTA (3ў) Three elements or groups of elements wired in a triangle (Delta). Power is: W = 1.73E x I where E is volts between any 2 lines and I is current in any 1 line. Power in each side of Delta is 1/3 of total. Volts across each element is full line volts. Current thru each element is i = E/R.

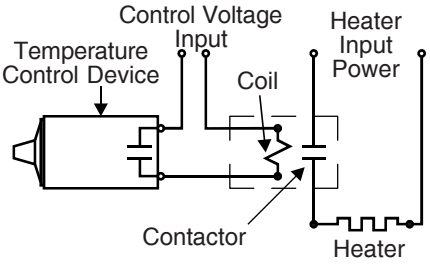


STAR or WYE (3ў) Three elements or group of elements wired in a Wye ("Y"). Total power is W = 1.73E x I, where E is volts between any 2 lines and I is current in any 1 line. Volts across each element (volts to neutral) is e = E/1.73. Current thru each element is same as each line wire.

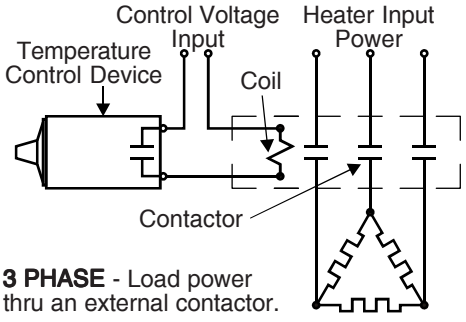
WIRING CONFIGURATION	HEATER ELEMENT VALUES (formulas and symbols)			
	VOLTS (e)	AMPS (i)	WATTS (W)	RESISTANCE (R)
Parallel	line volts (E)	$\frac{\text{line volts (E)}}{\text{element Ohms (Rn)}}$	E x i	E/i
Series	$\frac{\text{line volts (E)}}{\text{\# of elements}}$	line amps (I)	e x i	e/i
Delta	line volts (E)	$\frac{\text{line amps (I)}}{1.73}$	e x i	E/i and E/1.73 I
Star (Wye)	E/1.73	line amps (I)	e x i and E x I/1.73	e x i and E/1.73 I



SINGLE PHASE - Load power thru a temperature controller.



SINGLE PHASE - Load power thru an external contactor.



3 PHASE - Load power thru an external contactor.

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