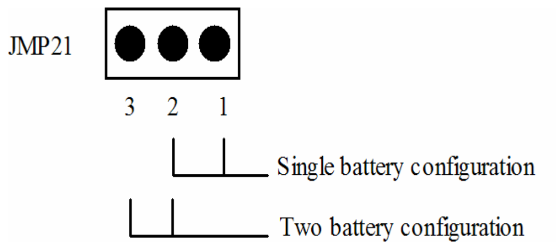
Quick Start Guide for End Device Configurations

1.0 Battery Configuration

For battery operation, use AA alkaline batteries and apply a 2-pin jumper to the appropriate two pins of **JMP21** as shown in the figure below for single battery or two battery operation. This jumper is located at the top of the End Device board just to the right of the battery holders. Two battery configuration is the default factory setting.

Note: For single battery configuration, the AA alkaline battery should be placed in the lower battery holder closest to middle of the End Device board.

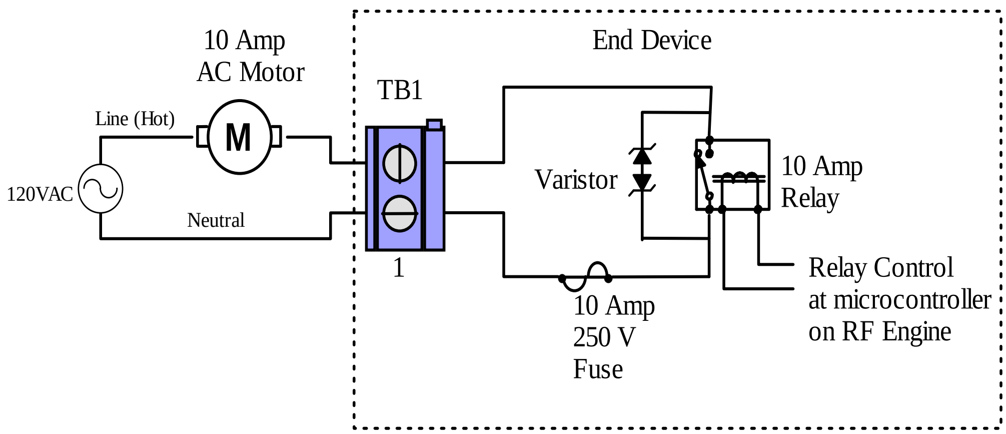


2.0 RS-232 Power

For battery operation, the RS-232 chip is disabled to conserve battery power. Install a 2-pin jumper at **JMP22 – RS-232 PWR** located toward the center of the End Device board to keep the RS-232 chip enabled during battery operation.

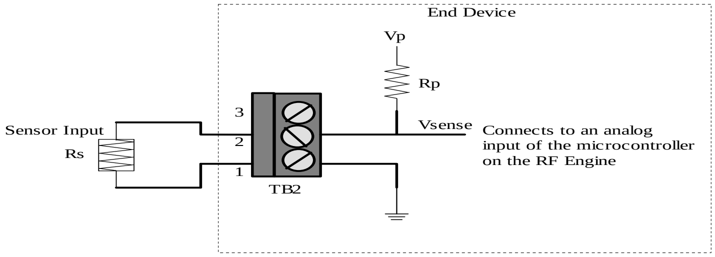
3.0 Relay Switch

Below is an example of a typical hookup to the relay switch thru terminal block **TB1**. The relay switch can switch AC loads up to 10 amps and 250VAC. For 120 VAC configurations, the neutral line is recommended to be run thru the switch to the load as shown. The relay switch can switch DC loads up to 10 amps and 30VDC. TB1 can accept 22 to 14 AWG wire sizes.



4.0 Sensor Input

The sensor input supports resistive type sensors plugged in to pin 1 and pin 2 of terminal block **TB2** as shown in the figure below. TB2 can accept wire sizes between 28 to 16 AWG. For shielded wire applications, the shield can be attached to the ground plane (GND) of the End Device by connecting the wire shield to pin 3 of TB2 and applying a 2-pin jumper to **JMP3** on the End Device board directly above pin 3 of TB2.

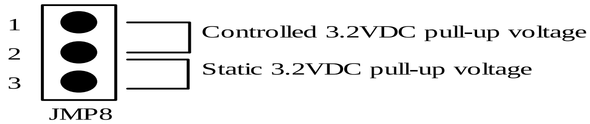


From the resistor divider circuit shown in the figure above and applying Ohm's Law, the resulting output voltage signal (Vsense) is given by the equation:

Equation: *Vsense = (Vp / (Rp + Rs)) * Rs*

where Vp = 3.2 VDC (Vcc of I/O Host Board).
Rp = pull-up resistor defined by the table below.
Rs = sensor resistance defined by sensor vendor resistance curves versus function sensed.
Vsense = analog voltage that goes to an "analog input" on the microcontroller of the RF Engine. The microcontroller has a 10 bit analog to digital converter.

Also, the pull-up voltage Vp can be either a static pull-up voltage or a pull-up voltage controlled by the microcontroller on the RF Engine to conserve power. This selection of pull-up voltage is made by applying a 2-pin jumper to **JMP8** as shown below. JMP8 is located just to the left of TB2 and slightly above it.



Finally, the table below shows the jumper settings and the resulting resistance value for Rp. **JMP10 – 12** are located just to the right of TB2 on the End Device.

	Possible Jumper Configurations for Sensor Pull-up Resistance							
	1	2	3	4	5	6	7	8
JMP10	N	P	N	P	N	P	N	P
JMP11	N	N	P	P	N	N	P	P
JMP12	N	N	N	N	P	P	P	P
Rp (ohms)	Invalid	10K	100K	9.091K	1M	9.901K	90.909K	9.009K

where : N - jumper not populated
P - jumper populated
Invalid - if no jumpers are installed, then pull-up circuit for sensor input is disconnected