FPST 1373 Battery Capacity and Voltage Drop Outline

I. Battery capacity calculations
   a. Must be able to have systems even with loss of power
   b. Batteries lose strength over time
      i. 80 % decrease
      ii. 20 % safety factor
   c. Battery life in Amp-hours
   d. Spreadsheet
      i. Standby current
         1. From data sheet
      ii. Emergency current
      iii. Quantity
         1. From design
      iv. Time factors
         1. Will cover emergency power
II. Voltage drop calculations
   a. End of secondary power
      i. 85 % decrease
         1. 20.4 V
   b. Enough voltage at last device
      i. 16 V
      ii. Account for panel
   c. Spreadsheet
      i. Device current
         1. From data sheets
      ii. Wire resistance
         1. Increases with length
         2. Decreases with diameter
            a. Gauge- smaller gauge is bigger diameter
         3. Increases with temperature
      iii. Methods
         1. End of line
            a. Add up current for all devices
            b. Add up resistance of all wire
            c. Multiply together
         2. Point-to-point
         3. Load centering