

BATTERY CAPACITY CALCULATION SHEET

The formula :

LOAD POWER x UPS POWER FACTOR / UPS INVERTER EFFICIENCY= TOTAL POWER ON BATTERIES

TOTAL POWER ON BATTERIES / BATTERY NUMBER PER STRING= POWER ON SINGLE BATT

POWER ON SINGLE BATT / CELL QTY = POWER ON SINGLE CELL.

Example;

10kVA VISIONTEC I-POWER 3phase UPS.

In 10kVA unit we need to use 62pcs of batteries in one string to reach the dc voltage value necessary for inverter.

$$10.000\text{VA} \times 0.8 / 0.95 = 8,421.0 \text{ W}$$

$$8,421.0 / 62 = 135.8 \text{ W (necessary power need to be obtained from single battery)}$$

$$135.8 / 6 \text{ (at each 12v battery there are 6cell)} = 22.6\text{W power required from one battery single cell.}$$

Please look at the battery performance data sheet which is sent as attached, let's suppose we want 15min back up time. The necessary power can be obtained from 7Ah batteries. The final discharge is selected as 1.75V, and the rated hour is 15min, if check the watt capacity in the coincided column, you see that 7Ah battery can give 24.3W for 15min which is more than we require.

With this way we find the right capacity of batteries.

The right battery for above example is 62pcs 12V 7Ah batteries.

POWER FACTORS OF VISIONTEC UPS'S:

ITEC SERIES = 0,6

I-SINE, I-POWER, GREEN VISION, GREEN VISION-T & GREEN VISION EXTEND = 0,8

INVERTER EFFICIENCY OF INFORM UPS:

ITEC & I-SINE = 0,9

I-POWER, GREEN VISION, GREEN VISION-T & GREEN VISION EXTEND = 0,95

FINAL DISCHARGE VALUES OF MODELS :

ITEC = 1.6V/cell

I-SINE & I-POWER = 1.65V/cell

GREEN VISION & GREEN VISION-T = 1.75V/Cell

GREEN VISION EX = 1.65V / Cell