Base station battery time calculation

How to calculate battery run time?

How to calculate battery run time (Accurate method) Current-based formula: Runtime (hours) = Capacity (mAh) ÷ Load Current (mA). Power-based formula: Runtime (hours) = (Capacity (mAh) × Voltage (V) ÷ 1000) ÷ Load Power (W).

How do you calculate a flashlight battery run time?

Let's assume a standard voltage for flashlight batteries, such as 1.5V: Battery Capacity (in Wh) = Battery Capacity (in Ah) *Battery Voltage (in V) = 1Ah *1.5V = 1.5Wh Now, using the battery run time formula: Battery Run Time (in hours) = Battery Capacity (in mAh) /Device Power Consumption (in mA)

How do you calculate battery capacity?

The calculator uses the following formula: Run Time (hours) = [Battery Capacity (Ah) × Battery Voltage (V)] / Device Power Consumption (W) Where: Battery Capacity is the amount of charge the battery can hold, typically measured in Amp-hours (Ah) or milliamp-hours (mAh). 1 Ah = 1000 mAh. Battery Voltage is the voltage of the battery in volts (V).

What is a battery runtime calculator?

The formula behind the Battery Runtime Calculator is grounded in basic electrical principles. The key formula is: This calculation considers: Battery Capacity (Ah): The total charge the battery can hold. State of Charge (SoC): The current charge level of the battery as a percentage.

What is battery run time?

Battery run time refers to the duration for which a battery can power a device continuously before needing to be recharged or replaced. It is the duration for which a device can operate on a single battery charge. For example, suppose a smartphone has a battery run time of 10 hours.

How do you calculate battery life?

To estimate battery life, use the formula: Battery life = Battery Capacity (mAh) /Load Current (mAh). For instance, with a 500mAh battery and 100mAh load current, divide capacity by current: 500mAh /100mAh = 5 hours. Differentiating between milliampere-hours (mAh) and ampere-hours (Ah) ensures accurate calculations and prevents errors.

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