

## How to Calculate Backup Operating Time During Power Outage

Determining operating time requires the following inputs:

**a) The size of the battery bank**

i.e. its total Ampere-Hour (A-hr) capacity

Ampere-Hour capacity is calculated by adding the A-hr ratings of all of the batteries in the battery bank where the batteries are connected in parallel. (For Parallel Connection See Fig. #1)

**b) The current draw for the sentry in Amps (C).**

This can be computed by summing all of the electrical loads which the sentry is expected to operate

**c) The average operating duty cycle of the system**

The duty cycle of a system is the ratio of its "on" time to its "on" time plus "off" time  
e.g. if a water circulation pump will work for one minute and is then off for two minutes, its duty cycle is calculated as follows:

$$\text{Duty cycle} = 1/(1+2) = 0.33$$

**d) Once (a) (b) and (c) are known the operating time of the sentry (in hours) can be calculated by the formula:**

$$T = A\text{-hr}/(C \times 10 \times D)$$

e.g. for a system with 3 batteries each rated 90 A-hr.

1) 3 batteries each rated 90 A-hr., A-hr = 3 x 90

2) A load that draws 4 Amps, C=4

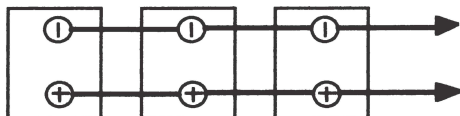
3) Duty cycle which operates 1 minute "on" followed by 3 minutes "off", D = 1/(1+3) = 0.25

$$T \text{ (Hours)} = (3 \times 90)/(4 \times 10 \times 0.25) = 27$$

Multiple batteries (2 or 3) may be connected as shown to increase operating time.

**Figure 3**

To Sentry DC Connections  
**Parallel Connection**



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# WHEN THE POWER GOES OUT...



## Stay Warm!



### Surefire Sentries™

*Automatic Battery Backup*

- Wood/Corn Pellet Stoves
- Kerosene & Gas Heaters
- Water Circulation Pumps



[www.secamerica.com](http://www.secamerica.com)

# Why do YOU need a Surefire Sentry Product?

Preparation is the difference between an emergency and an inconvenience. Driving you car without windshield wipers is OK until it rains, and impossible when it does. Invest in **Surefire Sentry** and be prepared for the inevitable.

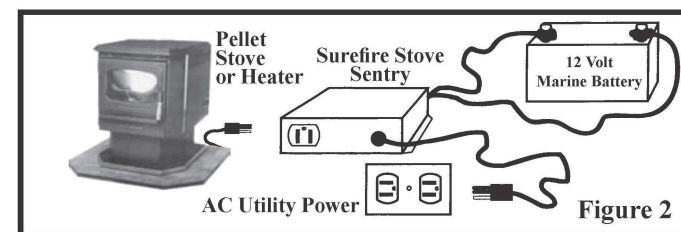
During those cold dark winter days, a power outage is the last thing you need. Whether you are at home or not, **Surefire Sentry** will maintain the operation of your pellet stove or water circulation pumps should your power fail.

When electricity is present the **Surefire Sentry** charges your battery and surveys the power line. The **instant** a power failure occurs, the **Surefire Sentry automatically** converts the energy stored in the battery to AC power. This assures operation of the pellet stove or water circulation pumps without interruption during the absence of electricity **WITHOUT YOUR INVOLVEMENT**. Even if you have invested in a generator, **Surefire** will keep your home warm until you get home to start it.

When AC power is restored, the **Surefire Sentry** instantly reinstates it as the prime energy source to operate your equipment. Simultaneously, the **Surefire Sentry** commences recharging your battery. It will be at full capacity prepared for the next power outage.

## Features and Benefits of Surefire Sentry

- \* **Up to 8 hours of operation with a 90 Amp Hour Battery**  
Will support stove operation for the average outage 90 A-hr. battery means a readily available affordable battery
- \* **Up to 24 hours or more of back up with an expanded battery bank**  
Beneficial in rural areas where outages can last for extended periods
- \* **Automatic Power Transfer**  
You do not have to be present to turn on your backup system
- \* **Automatic Recharge**  
You do not have to remember to recharge your battery  
You do not need an additional battery charger
- \* **Silent Operation**  
No generator noise  
Can be kept at home, basement or utility room
- \* **Easy Hook Up**  
No special wiring to hook up  
Plugs into standard wall outlet  
No special tools required
- \* **Maintenance Free Operation**  
Needs no fuel  
Has no moving parts  
No tune up required
- \* **Comprehensive Instruction Manual & Factory Support**  
Ensures satisfaction after the sale
- \* **2 Year Factory Warranty**  
Protection for your investment



**Figure 2** illustrates the interconnection between the pellet stove, Surefire Sentry and battery.



**Model 503B**

### Modified Sine Wave Models

Electrical Specifications:	Model SF 512	Model SF 503B
<b>Normal Mode Operation</b> (Supplying Line Power)		
Input Voltage Range	100-128 VAC	100-128 VAC
Input Current	5.5A	7A
Charging Current (max.)	12A	12A
Recharge Time (max.)	13 Hours	13 Hours
<b>(FOR 90 A-HR. BATTERY Fully Discharged)</b>		
<b>Back Up Mode Operation</b> (Supplying Battery Power)		
Maximum Back Up Power	550 Watts	750 Watts
Maximum Input Current	55 A	70 A
<b>Factory Warranty</b>		
	2 year	2 year
Dimensions (L x W x H) in.	12 x 7 x 3	17 x 7 x 3
Weight (lbs.)	10	15
Construction	Aluminum Extruded Housing with steel end caps and cover	

**Model 512 will operate most Harman pellet stoves .**

**Model 503B will operate with most pellet stoves including those equipped with electric igniters.**

**All models will operate water circulation pumps as long as they do not exceed Sentry ratings.**