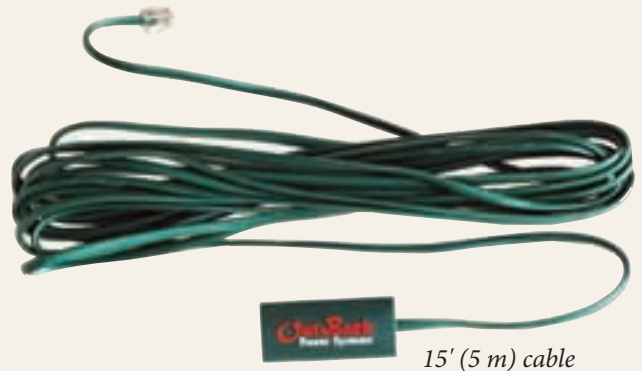


# Remote Temperature Sensor

## RTS

The OutBack Remote Temperature Sensor (RTS) is a necessary tool for proper battery charging. All OutBack products with integrated battery charging have a temperature compensation system built in which benefits from the installation of the RTS (included with inverter/chargers). The RTS ensures that your OutBack system knows the precise battery temperature so that it can recharge your batteries safely and efficiently. Systems with multiple OutBack products connected to one HUB4 or HUB10 require only a single RTS to be installed.



## Multi-Stage Battery Charging

Batteries are a key component in backup and off-grid systems, often serving as the only energy storage device. To guarantee that they function properly it is important that your batteries are maintained. A chief part of this maintenance is proper charging. Your batteries should always be maintained above a 50% level of charge and receive a regular recharges once a month to ensure operation at peak performance. Prolonged use of the battery below a 50% state of charge will adversely affect the long-term health of the battery and can result in premature failure.

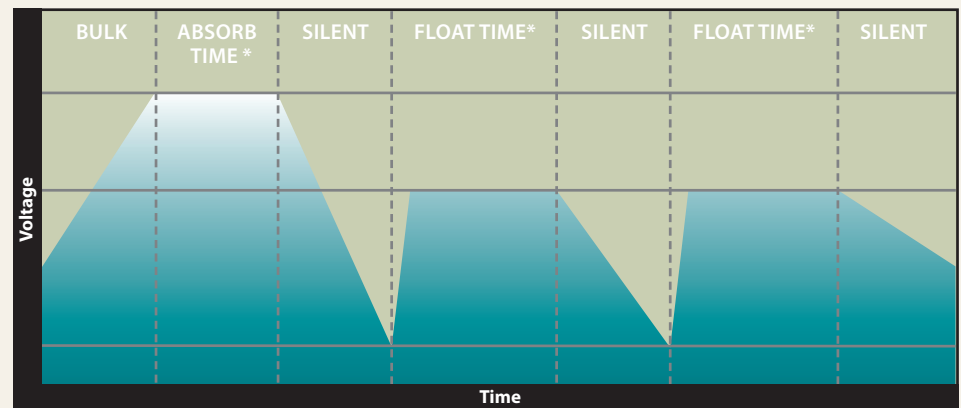
The multistage charging process (5 stages) uses several regulation stages to allow fast recharging of the battery energy storage system while ensuring a long battery life, high performance and efficient operation of the overall system. The charging process begins with the **BULK** stage, where maximum current is sent to the batteries until the target “absorb” voltage is reached and the absorb stage of the charge begins. During **ABSORB**, the charger provides the batteries with the just enough current to hold at the set voltage for a preset amount of time. Following this cycle, the charging system changes between available OutBack charging products. Using a FLEXmax Series

Charge Controller, the batteries enter the **FLOAT** stage where they are given a maintenance charge until there is no excess renewable energy. The FX or VFX inverter/charger will go into **SILENT** mode where the charger turns off until the battery voltage drops to the “re-float” setting. At this point the inverter/charger initiates the maintenance float charge. This method reduces fuel and utility consumption.

It should be noted that the temperature of your batteries has an impact on the charging process. The OutBack RTS should be used to monitor this. In higher ambient temperatures, the battery charging regulation settings will be automatically reduced to prevent overcharging of the batteries. Conversely, in lower ambient temperature conditions, the regulation

settings will be increased to ensure complete recharging of the batteries.

Batteries are composed of a group of individual cells. Through normal use, the charge of each individual cell will not be equal to the other cells. To address this, your batteries should be **EQUALIZED** either once each month or once every few months depending on usage. During the equalization charge the electrolyte in the battery is stirred up by gas bubbles, which help to create an equal mixture of water and acid. Simultaneously the full cells are overcharged which allows the low cells to “catch up” and all of the active material in the battery to be reconverted to its charged state. Depending on usage, the hardened battery plate material that is no longer active in the battery-sulfation can also be reduced by an equalization charge.



\*MATE Adjustable