

PATHFINDER LMA

LOST MODEL ALARM WITH IN-FLIGHT BATTERY INDICATOR

INTRODUCTION

PathFinder is multi-function device incorporating a Lost Model Alarm (LMA), battery voltage indicator and a low battery warning and alarm. It will help recover your model by sounding an alarm in the event of signal loss or interference. Once your model has landed and is out of sight, turn off your transmitter and PathFinder's lost model alarm will sound, allowing you to easily find it by following the sound. PathFinder's built-in voltage measuring system will indicate your receiver battery level as you power it on and warn you when the receiver battery becomes depleted. PathFinder has 2 levels of in-flight battery level warning. The first is the Low Battery Warning which will periodically sound when the battery reaches 4.4V. The second is the Low Battery Alarm which will alert you when the battery reaches the critical voltage of 4.2V.

FEATURES

- Lost model alarm.
- Loud beeper – can be heard from as far as 100 metres.
- Accurate battery indicator on power-up
- In-flight low battery warning.
- In-flight low battery alarm.
- Connector pins makes a Y-lead unnecessary.
- Low power consumption (Alarm sounds for 2 days on fully charged battery).
- Compact and light weight.

TECHNICAL INFORMATION

ELECTRICAL & PHYSICAL SPECIFICATIONS	
Operating Voltage	2.7 V to 6.0 V
Operating Temperature	-20°C to 80°C
Current Consumption - alarm inactive	4.75 mA
Min sound pressure @ 30cm (5V)	80 dBA
Weight	6 g
Module Size	23 x 12 x 12 mm
Low Battery Warning Threshold	4.4 V
Low Battery Alarm Threshold	4.2 V

Table 1. Technical specifications.

NOTE: Supplying more than 6 volts to the device could cause permanent damage. Please only use 4 cell battery packs.

CONNECTIONS

Connect PathFinder to one of the active channels on the receiver by connecting the RC lead as you would a servo. You may connect a servo to PathFinder's output pins if you need to utilise the channel. Please refer to the image on the right for an example of how to connect a servo. Note that when a servo is connected, a volt drop will occur across the servo wires and the voltage reading will be less accurate than when no servo is connected. When used in conjunction with other accessories (like a servo mixer – see www.firmtronics.com), make sure PathFinder is upstream (closest to the receiver). Please note that the connectors on PathFinder are JR-compatible.

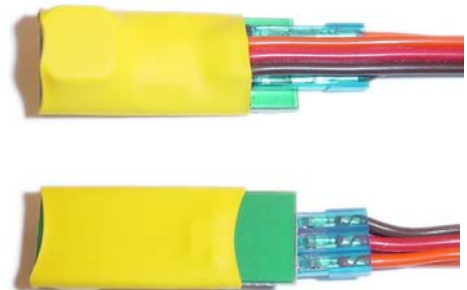


Figure 1. Connection Diagram

OPERATION

When the receiver is turned on, PathFinder will audibly indicate the battery voltage. The battery voltage indication is an audible representation of the battery voltage presented in a “number and decimal” format. It commences with a half-second low-tone beep followed by a 1 second pause then a series of higher-pitched beeps (indicating the voltage) followed by a higher-pitch ‘blip’ (indicating the decimal point) and another series of beeps (indicating the decimal value). For example, a voltage of 4.8V would have 4 beeps, a high tone blip and another 8 beeps. If the decimal value is 0 (eg 5.0V), a single low-tone is heard after the decimal point. Once the battery voltage has been emitted there is a 1 second pause before monitoring mode commences.

In monitoring mode, if PathFinder loses signal or detects interference, it will sound the Lost Model Alarm until signal is detected. If the signal has been lost for more than 3 seconds, the alarm will sound even if signal is detected. This feature allows the model to be recovered by following the sound even if another transmitter on the same frequency is turned on (eg. At a busy site where someone on your channel is waiting to fly). Only removing power will reset this condition.

During flight, when the receiver battery voltage reaches 4.4 Volts, a Low Battery Warning (3 short beeps) will sound every 10 seconds. This indicates that the battery is becoming depleted and your remaining flight time is getting low. When the receiver battery reaches 4.2 Volts, the Low Battery Alarm (3 short beeps) sounds every 1.5 seconds. You should land as soon as possible as you stand the risk of losing receiver operation (and therefore control) if the voltage falls much further.

(The following is technical information only.) This is especially true with Nickel-Metal-Hydride (Ni-MH) batteries which have a very sharp fall-off voltage once the battery is 70% (approximately) depleted. This means that if you are using Ni-MH batteries, you should prepare to land when you hear the 4.4V warning and NEVER try to extend your flight once you hear the 4.2V alarm.

Nickel-Cadmium cells are slightly more forgiving in that their voltage has a constant drop until 1V per cell is reached. This means that once the 4.4V warning is heard, you will still have a few minutes worth of flight time. When the 4.2V alarm is heard, you should be aware that this is the point at which the battery voltage falls off rapidly – so land soon!

Battery Information:

Using the battery indicator on PathFinder is a useful tool for prolonging the life of your rechargeable batteries. Rechargeable batteries have a ‘memory effect’ which comes into play when only a portion of the total energy is used between charges (as is most often the case with RC users). The batteries become ‘familiar’ with only supplying a portion of their full capacity and are soon only able to deliver that small portion, eventually deteriorating to a point of uselessness. It’s a myth that Ni-MH’s don’t suffer from the “memory effect” - they just suffer less than their Ni-Cd counterparts. “Deep Discharging” helps prevent this phenomenon and can significantly prolong your battery life and flight time. Once in a while (every 5th cycle or so), deplete your batteries to about 1V per cell (at 0.5C or less), or when the Low Battery Alarm sounds (only applicable a 4 cell receiver pack). If you don’t always fly to the limit of you battery (when PathFinder sounds the Low Battery Alarm), do it every now and then, even if you do it on the ground.

CONTACT

This product is manufactured by FirmTronics. Visit us at www.firmtronics.com for more information, including details of your nearest distributor, troubleshooting and updated user manuals.

WARRANTY

FirmTronics guarantees this product to be free from defects in materials and workmanship for a period of 90 days from the original date of purchase, verified by a sales receipt. This warranty does not cover incorrect application, incorrect installation, components worn by use, reversed voltage, improper voltage, tampering, misuse or shipping. Our warranty liability shall be limited to repairing the unit to our original specifications and in no case shall liability exceed the original cost of the product. By the act of installing or operating this product, the user accepts all resulting liability. We reserve the right to modify the provisions of this warranty at any time without notice.