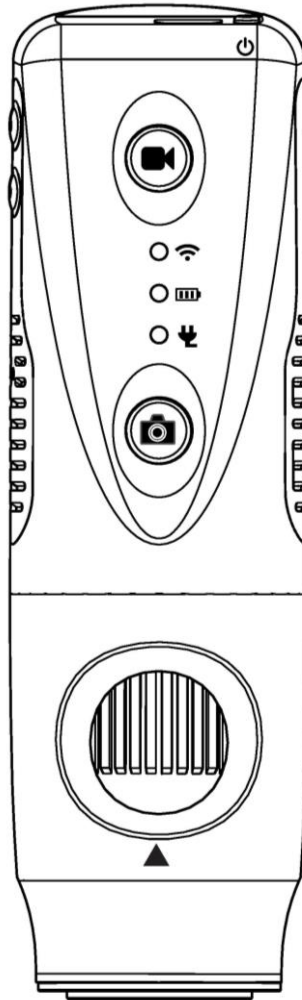




# DE570/DE571

# User Manual

## WIRELESS DIGITAL OTOSCOPE



### **THANK YOU FOR SELECTING A FIREFLY OTOSCOPE**

To take full advantage of this product's advanced capabilities, and to properly and safely use this product, please read the manual carefully.

Manufactured by FIREFLY GLOBAL – 464 COMMON ST, #281, BELMONT, MA 02478, USA

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Caution: Changes or modifications not expressly approved by Firefly Global will void the purchaser's authority to operate the equipment and its warranty.



MDSS GmbH  
Schiffgraben 41  
30175 Hannover, Germany



Tested To Comply  
With FCC Standards  
For Home or Office Use

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## INTRODUCTION

The Firefly Wireless Digital Otoscope System consists of a wireless digital Otoscope, software application, and a charge cable.

The Firefly Wireless Digital Otoscope System is designed for effective operation under a variety of conditions and typical video parameters are set at the factory.

## System Requirements

For iOS/Android, the Firefly Otoscope System requires a smart device with iOS version 9.3 or higher. For Android phones the system requires Android 4.4 and higher and for Android tablets 6.0 and higher.

For PC based applications, the Firefly Otoscope System requires a user PC system running Windows 10 or later operating system with Wi-Fi 802.11ac.

## Intended use

The Firefly Wireless Digital Otoscope System is intended to allow inspection of the external ear, ear canal, and tympanic membrane under magnification.

## User Profile

The Firefly Wireless Digital Otoscope System is intended for applications such as:

- Medical examinations
- Veterinary examinations
- Science Education
- Telemedicine

## Warranty Registration

Register your Firefly device at <http://www.fireflyglobal.com/warranty-registration/> within two weeks of your purchase and maintain your original receipt.

## Product Support

Please visit the FAQ section of our website at <http://www.fireflyglobal.com> for the latest troubleshooting information and additional support. You can also contact us at [support@fireflyglobal.com](mailto:support@fireflyglobal.com) Monday through Friday 9:30 AM to 5:30 PM Eastern Time.

## WARNINGS & CAUTIONS

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Please familiarize all operating personnel with the general safety information in this summary. Specific warnings and cautions are also found throughout this manual.

### Warning



A warning statement in this manual identifies a condition or practice which if not corrected or discontinued immediately, could lead to injury, illness, or death.

- Do not use in the presence of flammable anesthetics.
- This product has no user serviceable/replaceable parts. Please refer all service to authorized service personnel.
- This instrument is not intended to be used in the eye.

### Caution

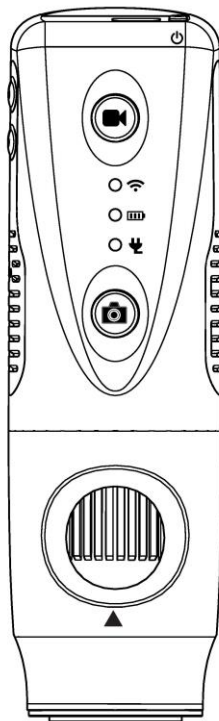


A caution statement in this manual identifies condition or practice, which if not corrected or discontinued immediately, could lead to equipment failure, equipment damage, or data loss.

- In order to obtain optimum performance and ensure patient safety, thoroughly read this manual.
- Do not use the Firefly Otoscope if you notice any signs of damage to the components of the system. Contact customer service for immediate assistance.
- Do not attempt to disinfect the Firefly Otoscope System using glutaraldehyde products, ethylene oxide gas, steam or any other liquid or gas disinfectant.
- This product complies with current required standards for electromagnetic interference and should not present problems to other equipment or be affected by other devices. As a precaution, avoid using this device in close proximity to other equipment.
- Do not apply alcohol, chemicals, or water to the lens. Any liquids entering the optical assembly will damage internal components.

## CHECK LIST

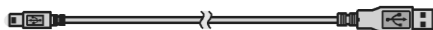
Before starting, check that all the following items have been included with your product. If anything is missing, contact your dealer.



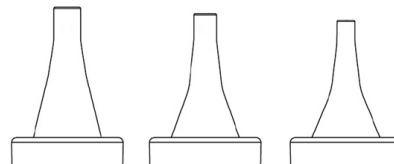
Wireless Otoscope X 1 pc



Clip x 1 pc



USB Charger Cable x 1 pc



5mm      4mm      3mm

DE570 Human one-time use  
specula (multiple pieces)



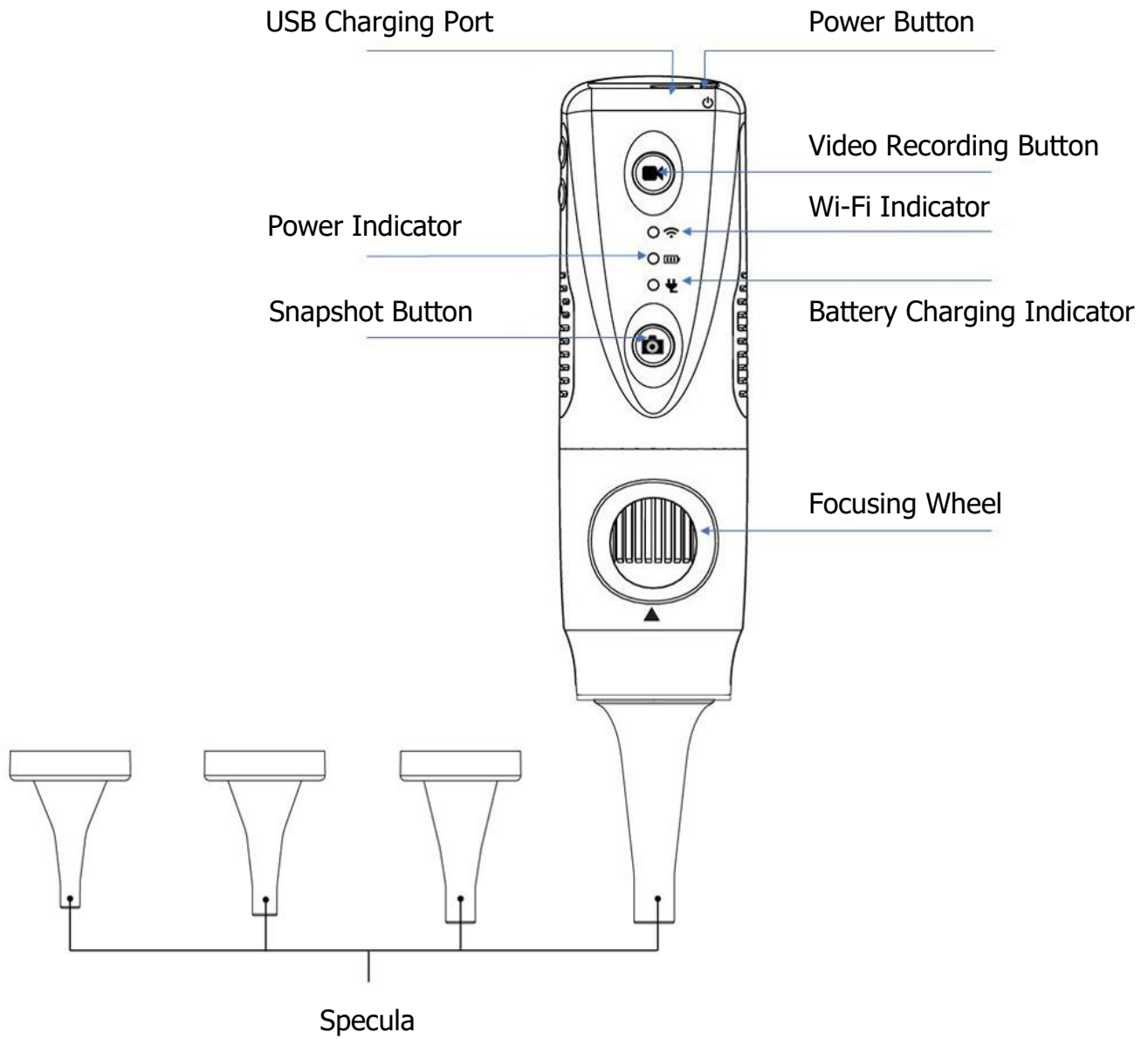
7mm      5mm      4mm      3mm

DE571 Veterinary one-time use  
specula (multiple pieces)



Power Adapter x 1pc  
100-240V AC to 5V USB DC  
Notice: Actual Shape may vary.

# NOMENCLATURE



## OPERATION

### Downloading the iOS/Android Application:

To download the application for iOS, please visit the Apple App Store.

To download the application for Android, please visit the Google Play Store.



### Launching the Software Application:

After Firefly Pro has been installed, simply open the application by tapping on the Firefly icon once and follow the set-up guide. The application has the capabilities to take photos and record videos, and is designed to be user friendly and self-explanatory.

### Powering the Device On:

Push the 'Power Button' at the rear of the Otoscope to activate the device. An indicator light will turn on to confirm the power status.



## Establishing a Wi-Fi Connection:

### Wi-Fi Indicator

When the device is off, this LED is off.

After device is turned on, this LED comes on after a few seconds when Wi-Fi is ready.

On your iOS/Android device, go to Settings. Click on Wi-Fi. Select the Firefly Device and input the default password: 12345678

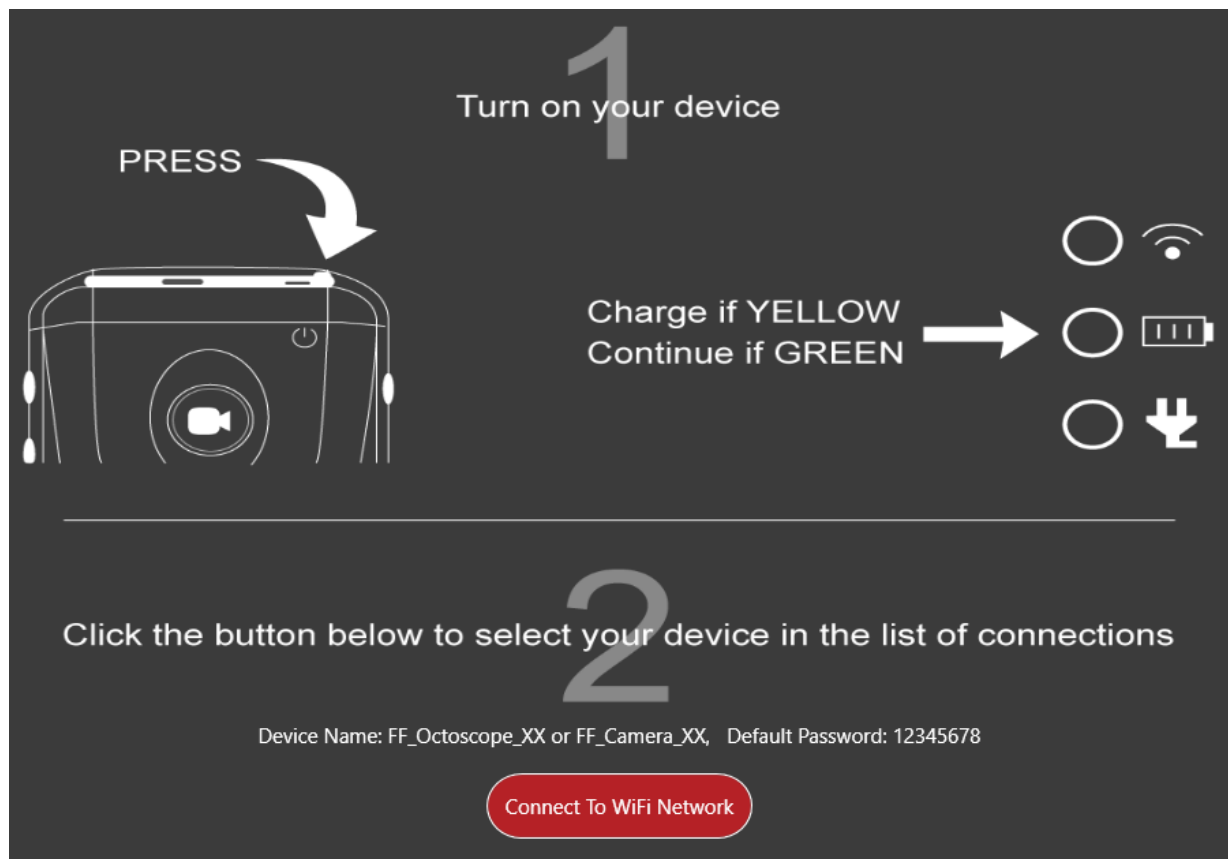


## Downloading and using the Wi-Fi application for PC:

1. To download, go to [www.Fireflyglobal.com/downloads](http://www.Fireflyglobal.com/downloads) and select the DE570.
2. After installing the software, double click on the FireflyPro – Wi-Fi application to open the application.



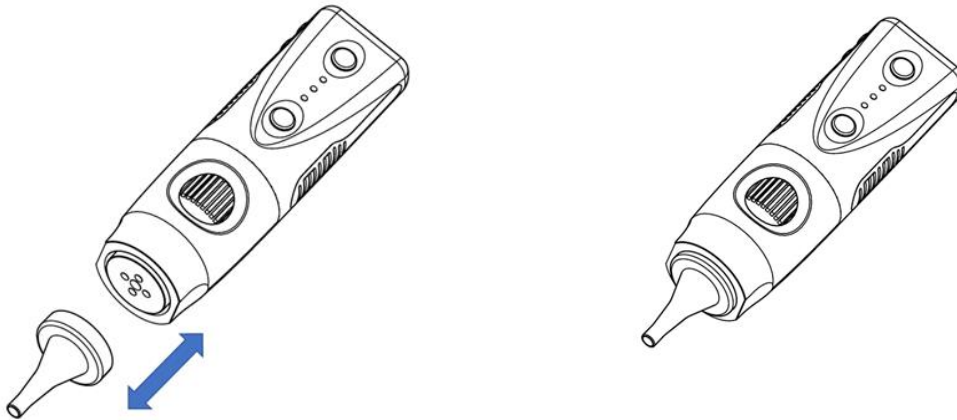
3. Once the application opens, follow the set-up steps to establish a Wi-Fi connection and start using the application.



## Setting up the Otoscope with Specula :



Only accepts original specula qualified for use with Firefly otoscopes.

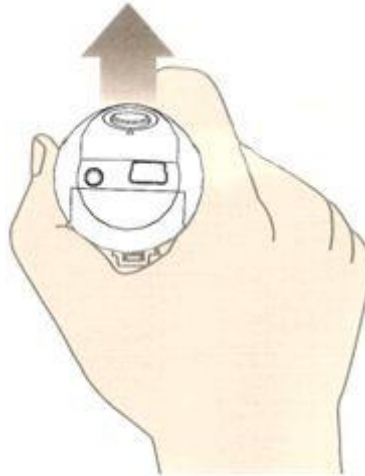


Plug the specula into the round concave guide in front. To remove: Simply pull to unplug the specula.

Ensure a tight fit for proper operation and adjust specula such that the circular opening is centered on the screen.

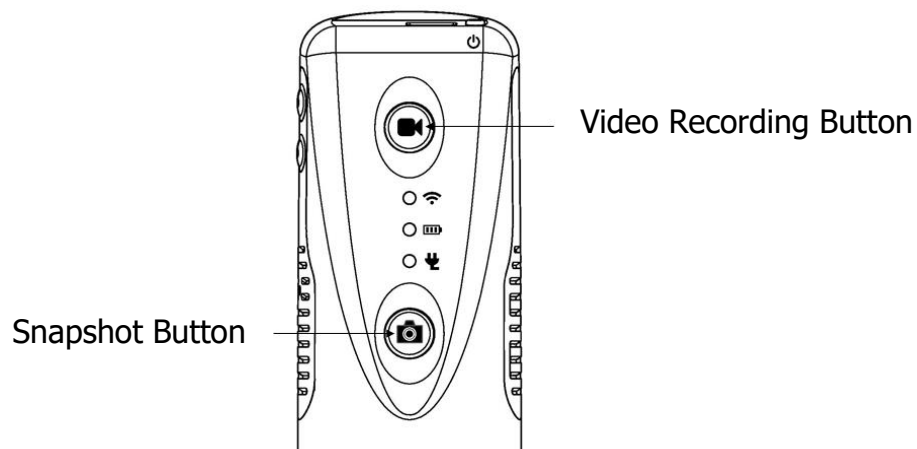
## Recommended Holding Position:

It is suggested to hold the otoscope, specula tip forward, with the thumb held on the equipment. This holding position offers relative stability and allows lens control. The index finger is still free to rotate and adjust the focus wheel (as shown).



## Using the Snapshot and Video Capture Controls:

Press and release the Snapshot Button to capture image frames. The system will generate a shutter sound from the speaker as confirmation. Press and release the Video Recording Button to record video. The system will not generate any sound when the Video Recording Button is pressed.

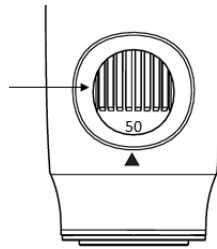


## Using Focus:

Based on the relative distance of the observed object, the focus wheel can be turned for a clear image. When a higher magnification is required, the focus wheel can be turned to the left (see below). If a larger field of view is required, the otoscope can be moved farther away and the wheel turned to the right.

**Free focus:**

Rotate wheel to fine tune the image



## Obtaining a clear image:

To obtain a clear image, please grip the Firefly Otoscope; remain still and avoid vibration as much as possible during observation.

## BATTERY CHARGING

### Power Indicator

When the device is off, this LED is off.

When the device is on, this Green LED is on. It comes-on immediately when the power on/off button is pressed.

When the battery power is low, this LED displays Yellow.

### Battery Charging Indicator

During normal battery operation, this LED is off.

When the charger is connected, this LED will be red.

When the charging is completed, this LED will turn green.

#### ■ Duration:

The Wireless Firefly otoscope has a built-in high efficiency lithium battery that enables more than 1.5 hours continuous operation.

#### ■ Charging the Battery:

Through the micro-USB port at the rear of the otoscope, the embedded battery can be charged with the provided USB DC cable. The cable must be connected to the USB port of a PC or to the "USB Power Adapter", which can charge directly from a wall outlet.

#### ■ Overload Protection:

The overload protection circuit will prevent overcharging when the battery is full and the "Indicator" will turn green.

#### ■ Power Indication:

The power indicator light is normally green during operation, but will turn yellow when the device needs to be recharged.



The lithium battery is a delicate and consumable item. It is expected to last through years of use and is guaranteed for twelve months from its purchase against defects. If there is any battery related issue, please contact customer service immediately. Battery replacement by unauthorized personnel or replacement with unauthorized batteries may damage the system and voids the overall warranty.

## MAINTENANCE AND SERVICE

### Cleaning and Care Recommendation

The Firefly digital otoscope is designed to provide years of service if it is maintained properly. Proper cleaning and gentle usage are critical to ensure that the device will continue to work reliably.

The otoscope cannot be sterilized and should not be submerged in liquids or subjected to steam sterilization or other sterilization methods.

It is also important to note that disposable specula should not be cleaned or disinfected in any way. Disposable specula are single patient use only and must be discarded after use. Disposable specula should not be used if they appear to be visibly contaminated or have accidentally come into contact with contaminated materials prior to use.

The exterior of the device may be cleaned with a lint-free cloth soaked in an alcohol solution. Alternatively, CaviWipes or similar disinfectant wipes can also be used. Please refer to the directions provided by the manufacturer of the wipes for appropriate instructions for use.

Wipe down the exterior of the device, cleaning all external surface areas. Care should be taken to prevent excess liquid from seeping into the internal components.

Do not apply alcohol, chemicals, or water to the lenses. Solutions entering the optical assembly could damage internal components.

The video otoscope should be stored in a safe location where it will not be subject to sudden impacts. Care should also be taken not to drop the device on a hard surface as this may damage the optical assembly as well as other internal components.

## Recycling the System Components

### Within the EU



Do not dispose of this product as unsorted municipal refuse. Submit for separate collection as specified by Directive 2002/96/EC of the European Parliament and the Council of the European Union on Waste Electronic and Electrical Equipment (WEEE).

If this product is contaminated, this directive does not apply. For more specific disposal information contact Customer Service.



### Outside the EU

When the product and its components reach end of life, recycle the product according to national, state, and local regulations.

## SERVICE POLICY

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All repairs on products under warranty must be performed or approved by Firefly or its authorized resellers. Unauthorized repairs will void the warranty. In addition, whether or not covered under warranty, any product repair shall exclusively be performed by Firefly-certified service personnel.

If the product fails to function properly — or if you need assistance, service, or spare parts — contact your Firefly reseller.

Before contacting your reseller, try to duplicate the problem and check all accessories to ensure that they are not causing the problem. When calling, please be prepared to provide:

- Product name and model number and complete description of the problem.
- Serial number of your product (if applicable).
- Complete name, address and phone number of your facility.
- For out-of-warranty repairs or spare parts orders, a purchase order (or credit card) number.
- For parts orders, the required spare or replacement part numbers.

If your product requires warranty, extended warranty, or non-warranty repair service, please contact your Firefly reseller. A customer service representative will assist you in troubleshooting the problem and will make every effort to solve it over the phone, avoiding potential unnecessary returns. In case a return cannot be avoided, the representative will record all necessary information and will provide a Return Authorization number, as well as the appropriate shipping address. The Return Authorization number must be obtained prior to any return.

If you have to return your product for service, follow these recommended packing instructions:

- Disconnect all hoses, cables, sensors, power cords, and ancillary products (as appropriate) before packing, unless you suspect they are associated with the problem.
- Wherever possible use the original shipping carton and packing materials.
- Include a packing list and the Return Authorization number.

It is recommended that all returned goods be insured. Claims for loss or damage to the product are the responsibility of the sender.

## SPECIFICATIONS

Item	Specification
Weight	Approximately 113 g (0.25lb)
Dimensions (approximate)	Length: 11.5 cm (4.5 inches) Height: 3.5 cm (1.4 inches) Width: 3.5 cm (1.4 inches)
Power	3.7V @ 550mA
Protection against ingress of water	IPXØ
<b>Operating conditions</b>	
Temperature	+10°C to +40° C (+50°F to +104°F)
Relative humidity	30% to 75% noncondensing
Altitude	700 to 1060 hPa
<b>Shipping and storage conditions</b>	
Temperature	-20°C to +49°C (-4°F to +120°F)
Relative humidity	95% noncondensing max.
Modulation	Wi-Fi 802.11ac
Output Power	10dBm to 14 dBm ± 1.5 dB
Sensitivity	PER @ -59dBm to -91bBm
Max Input Level	-20dBm to -30dBm
Coverage	Over 5 meters (15ft) on open field
Battery	More than 1.5 hours continuous usage
Capacity	1500mAh (Lithium battery)
Service	Authorized personnel only
Safety Compliance	FCC, CE and RoHS compliant

## LIMITED WARRANTY

### Limited Hardware Warranty (through distributors & resellers)

Firefly Global hardware products come with a 1-year limited hardware warranty. The warranty is extended through Firefly Global authorized representatives and resellers. If you have a warranty claim, please contact the store, distributor, or website through which the product was purchased.

Register your Firefly device at <http://www.fireflyglobal.com/warranty-registration/> within two weeks of your purchase and maintain your original receipt.

### What is covered by this limited hardware warranty?

This limited hardware warranty covers defects in materials and workmanship in your Firefly Global hardware products.

### What is not covered by this limited hardware warranty?

This limited hardware warranty does not cover:

- Software, including the operating system and software added to or bundled with the Firefly Global hardware products
- Problems that result from:
  - External causes such as accident, abuse, misuse, or problems with electrical power
  - Servicing not authorized by Firefly Global
  - Usage that is not in accordance with product instructions
  - Failure to follow the product instructions
  - Problems caused by using accessories, parts, or components not supplied by Firefly Global
- Products with missing or altered serial numbers
- Products for which Firefly Global or its distributors have not received payment
- Normal wear and tear

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE (OR JURISDICTION TO JURISDICTION). FIREFLY GLOBAL'S RESPONSIBILITY FOR MALFUNCTIONS AND DEFECTS IN HARDWARE IS LIMITED TO REPAIR AND REPLACEMENT AS SET FORTH IN THIS WARRANTY STATEMENT. ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN

TIME TO THE TERM OF THE LIMITED WARRANTY PERIOD REFLECTED ON YOUR PACKING SLIP OR INVOICE. NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THE LIMITED WARRANTY PERIOD HAS EXPIRED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THIS LIMITATION MAY NOT APPLY TO YOU.

WE DO NOT ACCEPT LIABILITY BEYOND THE REMEDIES PROVIDED FOR IN THIS LIMITED HARDWARE WARRANTY OR FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, ANY LIABILITY FOR THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES, FOR PRODUCTS NOT BEING AVAILABLE FOR USE, OR FOR LOST DATA OR LOST SOFTWARE. OUR LIABILITY WILL BE NO MORE THAN THE AMOUNT YOU PAID FOR THE PRODUCT THAT IS THE SUBJECT OF A CLAIM. THIS IS THE MAXIMUM AMOUNT FOR WHICH WE ARE RESPONSIBLE.

### **How long does this limited hardware warranty last?**

The limited hardware warranty on all Firefly Global products begins on the date of the packing slip, invoice, or receipt. The warranty period is not extended if a warranted product or any parts are repaired or replaced. Firefly Global may change the availability of limited hardware warranties, at its discretion, but any changes will not be retroactive.

### **What do I do if I need warranty service?**

Before the warranty expires, please contact the store, distributor, or website through which the product was purchased.

### **What will Firefly Global do?**

Firefly Global or its authorized representative or reseller will repair any Firefly Global hardware products returned that prove to be defective in materials or workmanship. If Firefly Global or its authorized representatives are not able to repair the product, we will replace it with a comparable product that is new or refurbished.

When you contact our authorized representatives or resellers via phone or email, they will issue a Return Material Authorization Number for you to include with your return. You must return the products in their original or equivalent packaging, prepay shipping charges, and insure the shipment or accept the risk if the product is lost or damaged in shipment. The repaired or replacement products will be returned to you. The reseller or authorized representative will pay to ship the repaired or replaced products to you if you use a delivery address in the country where the reseller is located. Otherwise, the product will be shipped to you freight collect.

If it is determined that the problem is not covered under this warranty, you will be notified and informed of service alternatives that are available to you on a fee basis.

**How will you fix my product?**

We use new and refurbished parts made by various manufacturers in performing warranty repairs and in building replacement parts and systems. Refurbished parts and systems are parts or systems that have been returned to Firefly Global, some of which were never used by a customer. All parts and systems are inspected and tested for quality. Replacement parts and systems are covered for the remaining period of the limited hardware warranty for the product you bought. Firefly Global owns all parts removed from repaired products.

**May I transfer the limited hardware warranty?**

Limited hardware warranties are not transferable.

## TROUBLESHOOTING

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Please visit the FAQ section of our website at <http://www.fireflyglobal.com> for the latest troubleshooting information and additional support.

You can also contact us at [support@fireflyglobal.com](mailto:support@fireflyglobal.com) Monday through Friday 9:30 AM to 5:30 PM Eastern Time.

**Thank you for choosing Firefly.**



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