TreePix Camera

User Manual EN

Version 1.0
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Dear valued customer,

Thank you for choosing the TreePix Camera System. We truly appreciate your trust in our product and are committed to providing you with the best experience possible.

Your decision to use Agiception products supports our mission to advance imaging technology. We've crafted this product with dedication and care and are confident it will serve you well.

Remember, our customer support is always ready to assist you with any questions or concerns. We're not just offering a product; we're establishing a partnership. Here's to many successful projects and a clear, insightful imaging!

Warm regards,

For the Agiception Team,

Martin Kolarik, CEO

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1. Introduction

TreePix is a phenology camera system designed for periodic image capture with minimal power consumption, making it ideal for long-term monitoring in remote environments. This versatile camera is tailored for research and monitoring applications, providing high-quality imagery over extended periods, all while requiring minimal maintenance.

Equipped with a long-lasting battery option and simple user interface, TreePix is easy to deploy and operate. Its robust design ensures reliable performance in a variety of outdoor conditions, allowing you to capture the visual progression of natural environments with ease. Whether used for forest management, agricultural studies, or climate research, TreePix offers an efficient solution for capturing and analyzing phenological changes over time.

This user manual will guide you through the complete setup, configuration, and maintenance of the TreePix camera system, ensuring you get the most out of its capabilities.

2. Product Overview

When you open the device cover, you will have access to the main control board (see Figure 1). The following components are available for user interaction:

- **POWER LED**: This LED indicates that the device is powered on and active (not in sleep mode).
- **STATUS LED**: This LED signals that the device is currently in **Configuration Mode**.
- **NETWORK LED**: Unused in this version
- **RESET Button**: A button for manually restarting the device.
- **MAN RUN Button**: A button for manually waking up the device. This is only used when switching from **Automatic Photo Mode** to **Configuration Mode**.
- **MODE Switch**: A switch for selecting the operating mode of the device:
    - **Far-left position**: Automatic Photo Mode.
    - **Far-right position**: Configuration Mode.
    - **Do NOT use the MIDDLE position**
- **USB Port**: A mini USB port for connecting the device to a computer and accessing SD card in USB Mass Storage Mod**e**.
- **BATT Connector**: A connector for the device's power supply.
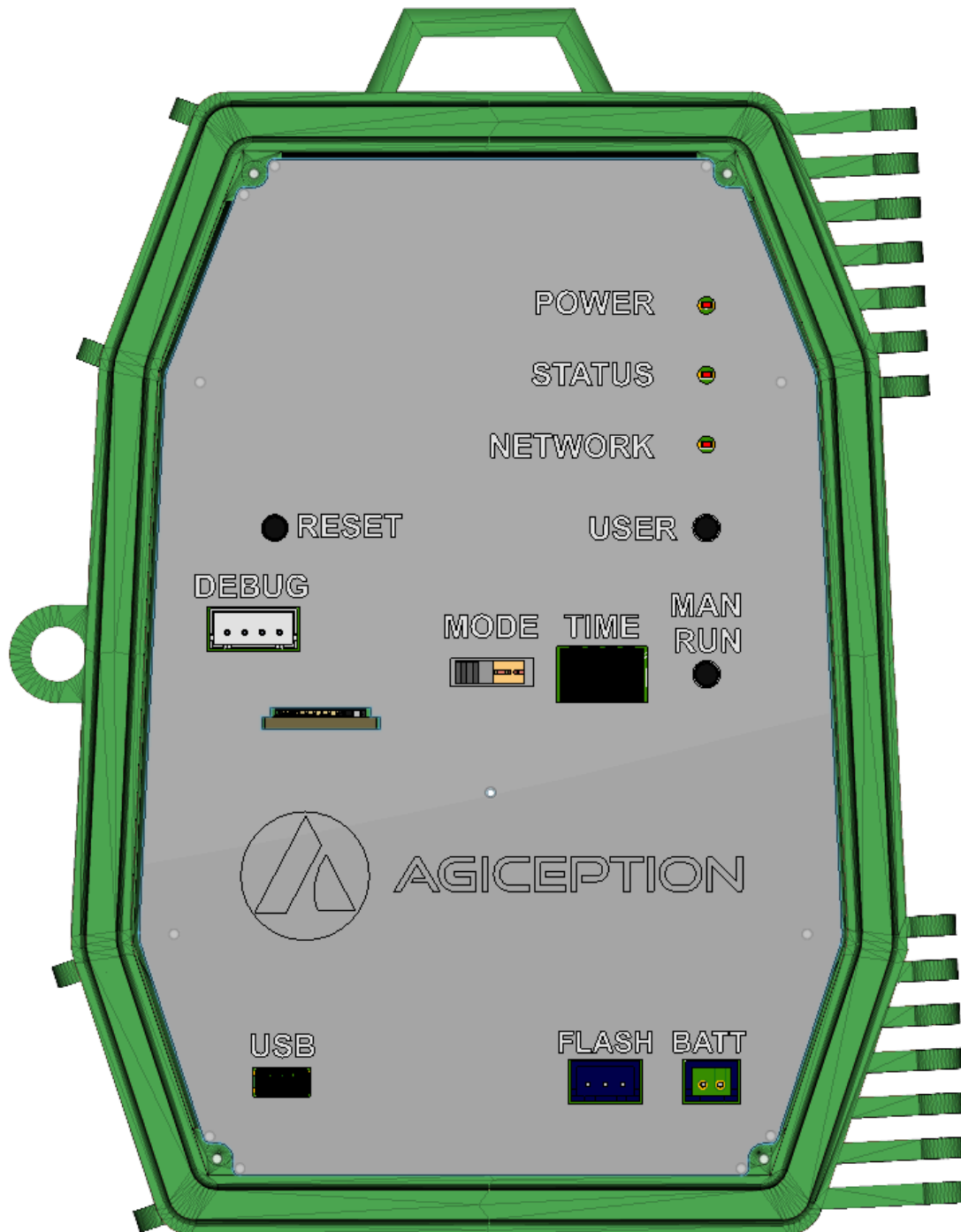- **microSD Card Slot**: A slot for inserting the microSD card used to store photos.

Fig. 1. Control board.

3. Operating Instructions

Simplified operating instructions:

1. **Insert a FAT32-Formatted SD Card and 3 D-Cell Batteries:**
   ○ Insert the SD card (formatted as FAT32) and 3 D-cell batteries to power the camera.
2. **Switch to Configuration Mode:**
   ○ Flip the mode switch to the far-right position for Configuration Mode.
3. **Connect to TreePix Wi-Fi:**
   ○ Connect to the camera's Wi-Fi network and access the setup page in your browser at 192.168.4.1.
4. **Set Preferences and Reset:**
   ○ Set photo intervals and other options. After saving, press the reset button and wait for the Wi-Fi to reconnect.
5. **Switch to Automatic Photo Mode:**
   ○ Flip the switch to the far-left position for automatic photo capture.
6. **Retrieve Photos:**
   ○ Switch to Configuration Mode and connect via USB - TreePix will connect as mass storage device
   ○ After getting images, change batteries and

Following are the complete operating instructions.

HARDWARE

To set up the device, follow these steps:

1. **Insert a microSD card** formatted with the FAT32 file system.
2. **Insert batteries** into the device and ensure the connector is plugged into the **BATT** socket.
3. Use the **MODE switch** to select **Configuration Mode** (the switch should be in the far-right position).
4. **Perform the initial device configuration** (refer to the Software Configuration section).
5. Use the **MODE switch** to select **Automatic Photo Mode**.
6. The device will now begin taking photos at the specified intervals.

Retrieving Photos

There are two ways to access the stored photos:

A) Preferred - Using USB Mass Storage Mode

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a. Use the **MODE switch** to select **Configuration Mode** (the far-right position).
b. Connect an external device to the PixTree using a **mini USB cable**.
c. You can now browse and retrieve the photos stored on the SD card from the external device.

B) Removing the SD Card

a. Disconnect the device from the power source.
b. Remove the microSD card.
c. Insert the microSD card into a computer or other external device.
d. Reinsert the microSD card into the device.
e. After reconnecting the power, set the **current date and time** in Configuration Mode.

Important Notes:

- When switching from **Automatic Photo Mode** to **Configuration Mode**, you need to wake up the device by pressing the **MAN RUN** button.
- In **Configuration Mode**, the device consumes more power. To preserve battery life, avoid keeping this mode active for extended periods.

Software

The device operates in two main modes: **Configuration Mode** and **Automatic Image Capture Mode**.

A. Configuration Mode

This mode is for configuration. In this mode, the device creates a Wi-Fi access point (AP) with the following parameters:

- **SSID**: TreePix_DEVICENAME (or simply TreePix if no device name is set)
- **Password**: TreePix123

How to use:

1) Connect to the wifi network TreePix
2) Open web browser and open IP address `192.168.4.1`
3) Configuration web page is shown on the Fig. 2.

Configuration Options:

1. **Device Name**: This name is part of the SSID of the Wi-Fi network and is also used in the filenames of saved images.

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2. **Capture Image Interval (in hours)**: Set the time interval between photos (e.g., one photo every x hours).
3. **Current Date and Time**: The date and time must be set each time the device is powered on, as it doesn't store the clock information after a power cycle.
4. **Image Horizontal Flip**: Option to horizontally flip the image.
5. **Enable/Disable Specific Image Capture Interval**: Enable or disable a specific time interval during which photos are taken (e.g., only during daylight hours).
6. **Interval Start Time:** The start time of the specific interval in hours and minutes.
7. **Interval End Time:** The end time of the specific interval in hours and minutes.
8. **Save Settings**: Save the settings to the device. Changes will take effect after the device restarts.
9. **Device Status Messages**: View status messages from the device.
10. **Current Snapshot**: A camera snapshot is taken each time the configuration page is refreshed, and it is displayed on the page.
11. **List of Saved Images**: Displays a list of images stored on the SD card with the option to view them.

USB Mass Storage

In Configuration Mode, the device can also be connected via a mini USB cable. In this mode, the device acts as a Mass Storage device, allowing you to browse and access the images saved on the SD card using an external device such as a PC.

TreePix Settings (ver. 1.0.1)

TreePix name (max. 8 chars): [   ] **1**
Capture rate (hours per frame): [1] **2**
Actual date and time: [dd.mm.rrrr --:-- 🗓] **3**

Flip image: ☐ **4**

Capture only in a specific time interval: ☑ **5**
Start time: [--:-- 🕐] **6**
Stop time: [--:-- 🕐] **7**

[Save] **8**

PixTree state: OK **9**

Last Image **10**
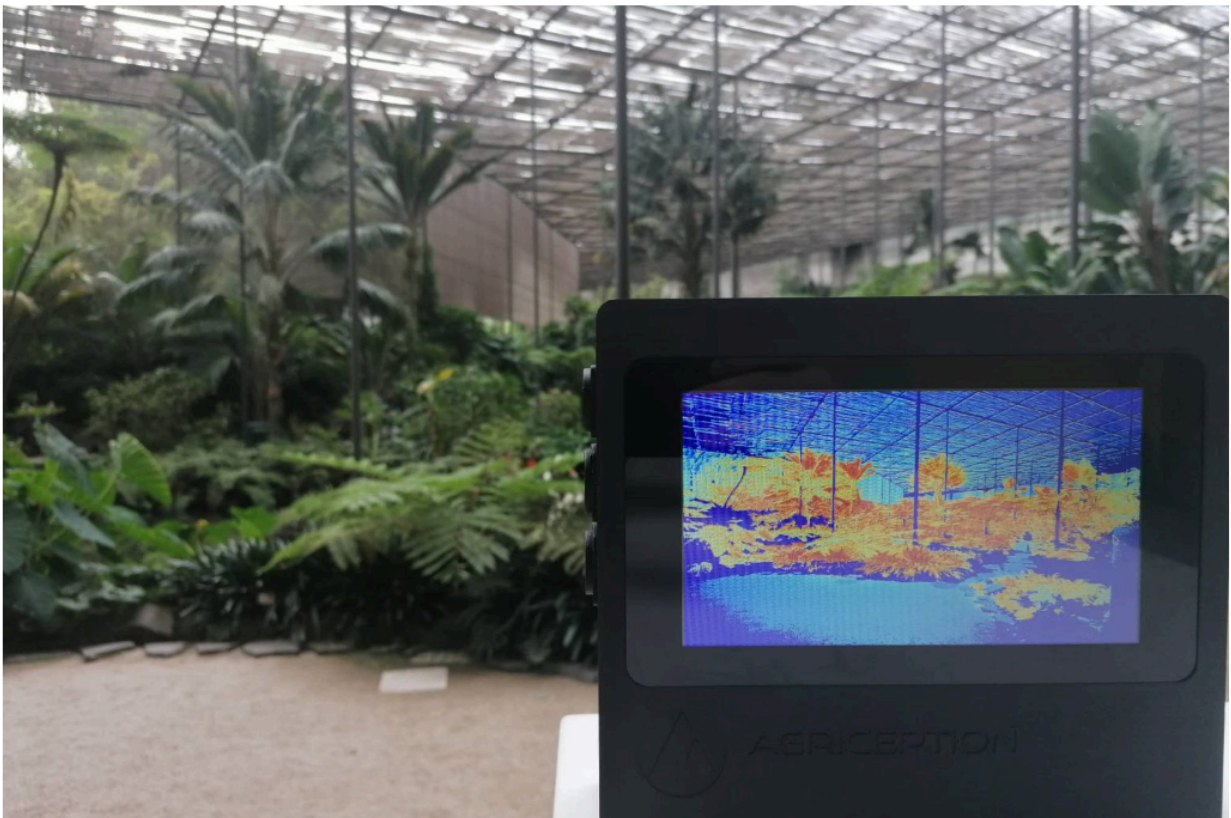
[List of photos](#) **11**

Fig. 2. Configuration web page.

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B. Automatic Photo Mode

This is the main operation mode for image capture. In Automatic Mode, the device takes photos at regular intervals set in Configuration Mode. It wakes up, takes a snapshot, and saves the image to the SD card in the format `DEVICENAME_DATE_AND_TIME.jpg`, then powers down until the next scheduled photo.

4. Safety Information

Temperature:
- Working temperature: 0–50ºC.
- Storage temperature: -10–65ºC.

Water and Dust:
- The camera should be opened in a dry environment
- Outdoors, always keep the housing closed tightly.

Heat:
- Keep the camera away from heaters, or any hot objects.

Handling:
- Handle with proper care.

Power:
- Only use standard D cell 1.5 volt batteries

Usage:
- This version of TreePix is for research use only.

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5. Maintenance

To ensure your PlantPix Smart Camera System works well for a long time, it's important to take care of it. Here are some maintenance tips:

Cleaning:
Use a soft, lint-free cloth to clean the camera lens gently. This keeps the pictures clear.
If the camera body gets dirty, wipe it gently with a slightly damp cloth. Then, dry it with a dry cloth.

Check Connections:
Every now and then, look at the cables and connections. Make sure they are not damaged or loose. If you see any wear or damage, contact Agiception.

Update Software:
Always have the latest software and firmware from the official source. This makes sure your camera works well and has the newest features.

Storage:
If you're not using the camera for a long time, store it in a cool, dry place.
Keep it away from direct sunlight or heat.

Avoid Extreme Conditions:
Remember the safe temperature range (0–50ºC).

Power Source:
Only use standard D cell 1.5 volt batteries - always 3 pieces with the same battery level. We recommend using non-rechargable batteries as they last longer.

By following these maintenance steps, you'll keep your PlantPix camera in top condition and get the best results from it.

6. Troubleshooting

Sometimes, you might face issues with the PlantPix Smart Camera System. Here are some common problems and how to fix them:

Camera Not Powering On:
- Problem: The camera doesn't turn on.
- Solution:
    - Check the batteries
    - Inspect the camera for any visible damage or moisture

Blurry or Unclear Images:
- Problem: The pictures from the camera aren't clear or are out of focus
- Solution:
    - Clean the camera lens using a soft, lint-free cloth.
    - Check if there's something blocking the camera's view.
    - Ensure the camera settings are configured for optimal image quality.
    - You can adjust the focal point by rotating the lens slightly after removing the main board using the 4 screws - if unsure, consult manufacturer

Camera Not Responding:
- Problem: The camera isn't responding or seems frozen.
- Solution:
    - Restart camera using the reset button
    - Replace batteries

Network Settings Issue:
- Problem: Difficulty in configuring network settings.
- Solution:
    - Ensure there is only one camera with the same name running at the same time

By following these troubleshooting steps, most common issues can be resolved. If a problem persists, consider reaching out to customer support or consulting the user manual for more detailed guidance.

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7. Warranty Information

The PlantPix Smart Camera System comes with a standard warranty to ensure you get the best out of our product. Here are the details:

Business Customers:

Warranty Duration: 12 months from the date of purchase. If there are special terms or extensions for your business, they'll be mentioned in your purchase agreement. If not, the standard 12-month warranty applies.

End-Users:

Warranty Duration: 24 months from the date of purchase.

What's Covered:

- The warranty covers any manufacturing defects or issues arising from normal camera usage.
- If the camera fails to work as described or breaks down during the warranty period, we'll repair or replace it free of charge.

What's Not Covered:

- Damages caused by misuse, accidents, or not following the user manual.
- Unauthorized modifications or repairs.
- Problems caused by using non-recommended accessories or power sources.

Making a Claim:

- Keep your purchase receipt or invoice. It's needed to confirm the purchase date.
- Contact our customer support with details of the issue and provide proof of purchase.
- You can make the most of this warranty by ensuring you use and maintain the camera per the guidelines. Always reach out if you face any issues; we're here to help.

8. Customer Support

Company contact:
- Agiception s.r.o.
- Address: Příkop 843/4, Zábrdovice, 602 00 Brno, Czech Republic
- Business ID 14040131, VAT Number CZ14040131
- Telephone: +420 608272461
- Mail:support@agiception.com
- Available hours - workdays 10-16 CET Time