

# User's Manual



## Flying insect connected trap

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## 1 INTRODUCTION

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This document provides instruction how to use the e-gleek™ connected trap for flying insects. This device aims at providing automatic counting of insects and alerts to an operator when large numbers of flies are detected.



Figure 1: general view of the vertical e-gleek™

## 2 GENERAL

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### 2.1 Product references

Commercial name: e-gleek  
Current version: 1.5.3  
Product number: ADV00290, ADV00292

### 2.2 Product usage

The e-gleek™ device aims at trapping flying insects and at providing regular counts of collected insects. Insects are classed by their size (3 categories). Results are sent to a remote server up to 5 times a day. Once one of the categories has reached its maximum limit or has exceeded the differential quantity defined by the user, an alarm is sent to the operator via TEXT or email.

One alarm can also be sent to the user when the density of flies captured on the sticky sheet is too important. It's a sign that the sheet must be changed. This limit is set as a percentage of the occupation of the foil.

Two options are available. One is using the 3G network to communicate both counters and images. The other one is based on long range radio communication (LORA, SIGFOX) to provide only alarms when a threshold has been exceeded.

NOTE: all information relative to services available through the 3G network are valid only for e-gleek traps equipped with the appropriate 3G SIM card.

### 2.3 Operation

Temperature for operation: -10°C à +40°C.  
Relative humidity: 15% à 90%.

### 2.4 Storage

Storage temperature: -20°C à +60°C.  
Relative humidity: 15% à 90%.

*Storage in outdoor condition must be avoided.*

## 3 GENERAL DESCRIPTION

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e-gleek™ is composed of an aluminum structure combined with one hermetic plastic box which contains the electronic of the trap and the counting system. It also includes the modem to communicate with the remote server. One slot is reserved to place the SIM card.

One second box (green) is connected to the aluminum tube. It contains and protects the image sensor and the optic.

The whole unit is waterproof and can operate in various environments, indoor or outdoor. The device has been designed to operate from -10°C up to +40°C.

### 3.1 General view

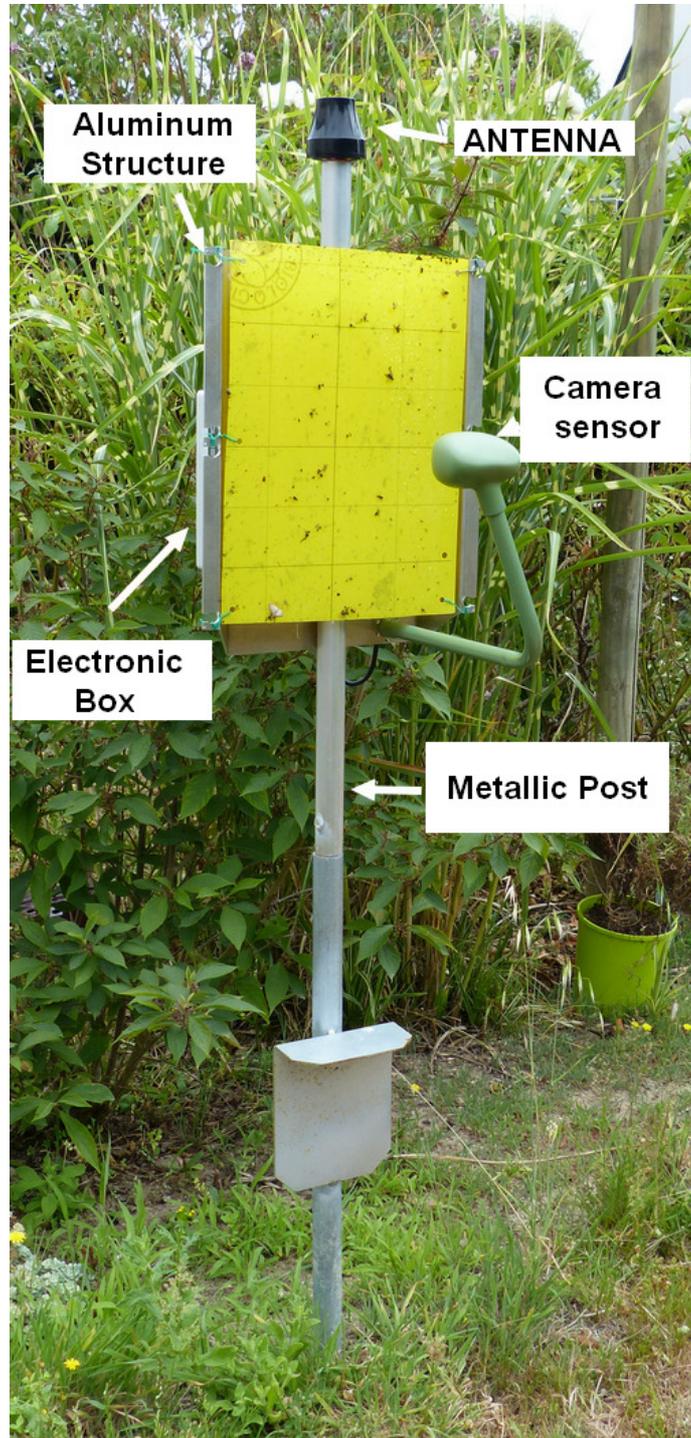


Figure 2: e-gleek™ general view

- a) Metallic structure (aluminum) to support both the electronic box and the sticky sheet
- b) Electronic box (including the SIM card slot)

- c) The Antenna to communicate with the 3G network
- d) The optic box centered and at approx. 17cm from the stick sheet
- e) The metallic post (the height of the trap can be adjusted by using the two U-bolts)

Mechanical characteristics

- Integrated system with embedded counting system and lead battery (gel)
- Indoor and outdoor operation
- Aluminum (metallic structure) and ABS (electronic and image sensor boxes)
- Up to 5 daily images/counting
- Communication of results via the 3G network

Dimensions and materials

- Height: approx. 60cm
- Height can be adjusted using the two inner U-bolts
- 35cm width
- 36cm depth
- Hermetic box material: ABS
- Metallic structure: Aluminum
- Post external diameter: 26mm
- Post internal diameter: 20mm
- Hermeticity: IP65

Electrical characteristics

The trap is battery powered. The electronic box contains one NP7-12 industrial VLRA battery. The battery offers several months continuous operation and must be recharged from time to time. Typical charge voltage: 13.6V. Max charge current: 1.75Amp. The e-gleek pack includes one battery charger. This charger can also be procured at [shop.advantsee.com](http://shop.advantsee.com) (part number ADV00106).

**4 INSTALLING THE DEVICE**

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At the reception of the pack containing the e-gleek trap, some construction must be done to get a fully operational device.



## 4.1 Out of the box

Two separate elements are visible when opening the box:

- a) The metallic structure including the hermetic white ABS box
- b) The optic tube + accessories (antenna, U-bolts, M3 nuts and bolts)

Mounting instruction

- c) Install the optic tube so **the optic is aligned with the center of the metallic frame.**
- d) Firmly fix the tube using the M3 bolts and nuts.
- e) Connect the black connector the 4-pin connector at the plastic box
- f) Introduce the antenna cable into its support at the top of the metallic frame. Fix firmly using the M12 nut.
- g) Connect the antenna cable to the golden connector at the top of the plastic box.

And this is it. The trap is nearly ready to be installed in the field... but first you must place the sticky sheet and configure the trap with regards to planification.

## 4.2 Installing the SIM card

When not provided by ADVANSEE, the SIM card can be installed in a specific slot inside the hermetic white box. Unscrew the cap of the box and identify the slot where the SIM card should be inserted. **Insert carefully the SIM card with the metallic contacts down.** Put back the cap and tighten the screws so to get back the hermeticity.



Figure 3: The SIM card slot



Figure 4: with the SIM card

NOTE: The APN (Access point Name) of the SIM card **must** be indicated in the main page when connected to the trap internal web site (see Wifi connection). Consult your SIM card provider to get the correct APN.

## 4.3 Set-up of the trap for operation

The set up of the trap is very easy and limited to three different parameters.

- a) The time and the date of the internal clock

The on-board electronic is totally disconnected from the power supply at all time but when necessary to capture one image and process the number of insects. Therefore, the planification of these events is planned according to one internal clock which must be verified regularly. The setup of the clock is done at the end of the manufacturing, but it might change from country to country.

NOTE: there is no periodic time change as the "sun" time is the reference.

- b) The planification of the monitoring

Time of the first counting during the day, the number of counting and the time interval between two successive counting must be configured by the user.

c) The presence of the 3G network

The trap does not store any image nor results internally. Every important information is transferred to the remote server via the 3G network. Therefore, it is necessary to verify whether there is a possibility to connect to the 3G while installing the trap. You can run a verification to test whether the traps can connect to the server or not.

#### 4.4 Select the operational modes

As far as monitoring of the crops is concerned, it must be connected to the potential presence of insects in the fields. To be consistent with energy savings, the trap must be turned OFF when there are no risks of pest invasion. Since the device cannot be totally powered OFF, one feature has been designed to stop the counting (image shooting + processing). Therefore, the trap has two operational modes:

a) Active counting

The trap is programmed to wake up at every time slot the user has programmed. The image will be shot, and the image processing will be performed. The results will be transferred to the remote server.

b) Sleeping mode

While not necessary to monitor the crops, the trap remains in sleepy mode. There are no wake-up at all and no communication with the server. SIM card is in **reduced traffic mode**.

c) Changing from one mode to the other

To switch from one mode to the other, go to the green interface on the side of the electronic box. Press the button next to the fly pictogram. The LED will illuminate either green (active counting) or red (sleepy mode). Change to the color you want by pressing rapidly the button and leave the proper LED turn off. The trap is now in the mode you have selected.



Figure 5: Select the appropriate operational mode

## 5 ACCESSING THE CONFIGURATION MODE

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The e-gleek device must be configured to operate correct insect counting. To access to these configuration parameters, you must connect to the trap inner web site. Any Wifi device (smartphone,

tablet, PC) could be used to connect to the trap.

### 5.1 Starting the e-gleek WIFI hotspot

Press the test button twice. The 3 LEDs will generate a running light until only one will blink at a frequency of 1 hertz (the color of the LED indicates the charge level of the battery). Once this happens, the wifi hot spot of the e-gleek trap is active.

### 5.2 Connecting to the e-gleek Wifi hotspot

Use your Wifi device to check available Wifi networks. One with e-gleek00xxxx should show up (xxx corresponds to the e-gleek number). Connect your device to this network and give **tgV44air!** as password.

Start your preferred internet explorer<sup>1</sup> and go the IP address: 192.168.42.1  
 You should get the internal web server front page.

Connection summary:

Wifi Hotspot: e-gleek00xxxx

Password: tgV44air!

IP address: 192.168.42.1

### 5.3 The Home page

In the home page, there are several important information:

1. The image of what the camera is looking at (if a logo appears, it's because you have not connected the optic cable to the 4-point connector).
2. The menu (three small bars icon at the upper right side of the screen)
3. The APN for the SIM card to connect to the 3G network
4. The check for network connectivity
5. The POWEROFF button

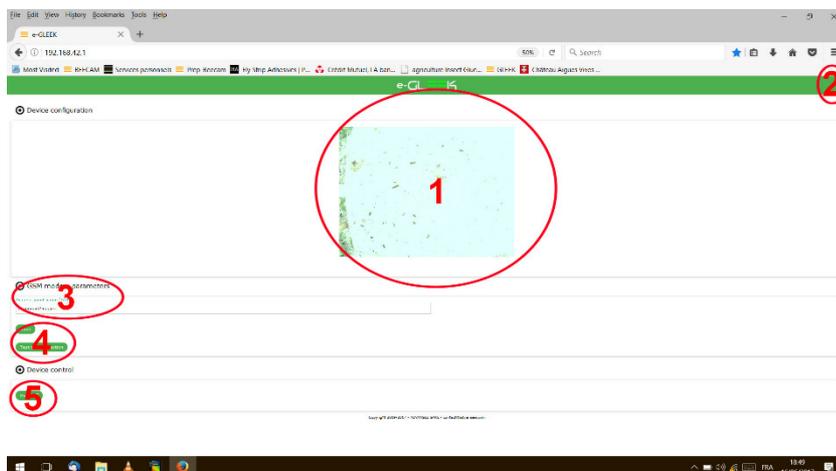


Figure 6: Home page of the e-gleek web site

<sup>1</sup> You might turn the mobile data of your smartphone OFF to get access to the trap internal website.

## 5.4 Check the Date and Time

Press the menu icon and select Date & Time. One new page is opening. You can change the date and time in this page and save it.

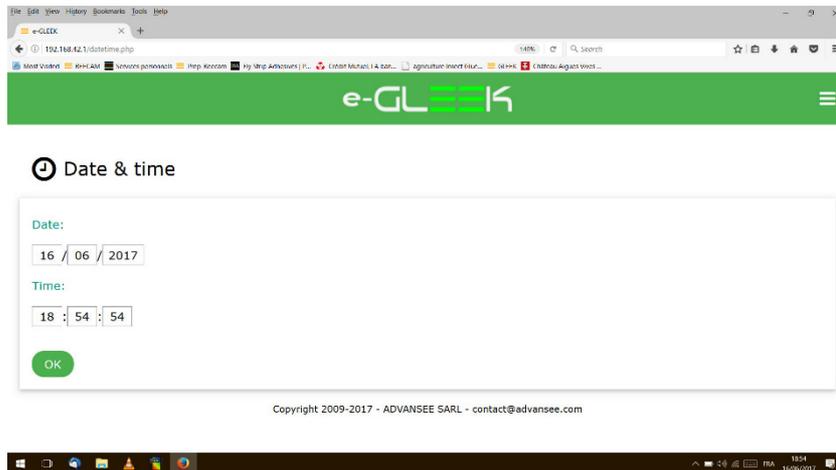


Figure 7: Date and Time page

## 5.5 Schedule the counting events

Go to the menu and select 'Planification'. Indicate at what time the first count shall be executed, the number of counts per day (maximum allowed is 5), the interval between two successive counts.



Figure 8: the planification configuration page

## 5.6 Check the network availability

On the front page, gives the system the APN identification. Save the data and request the system to check the connectivity. A new page will be displayed. The check is refreshed every second. It might take a while until the connection is verified. Once the connectivity has been successfully tested, the **FAIL** will be changed to **OK**. You can return to the main page by using the button **BACK**.

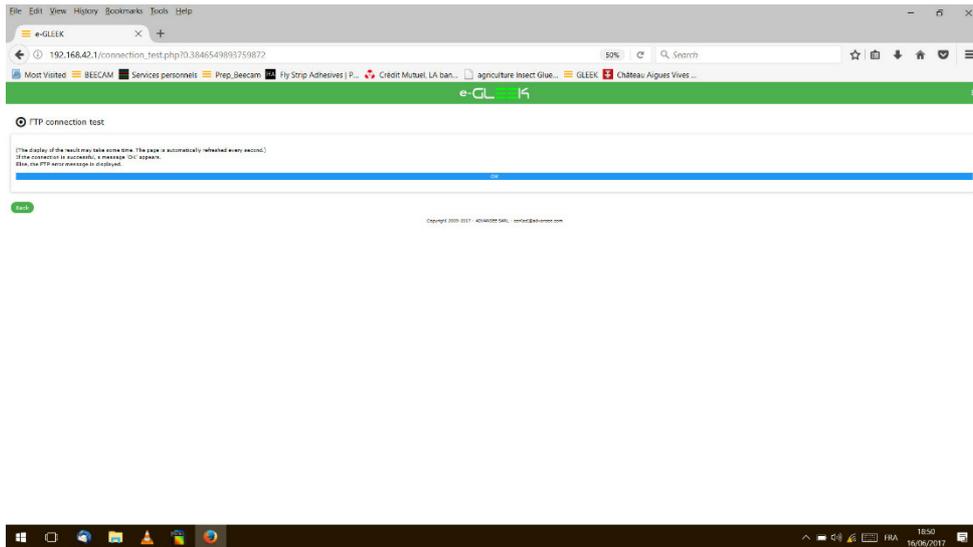


Figure 9: the network connectivity check page

## 5.7 Stop the device

If you want to stop the trap, simply press the Poweroff button at the bottom of the front page. The device will be completely stopped after 20 seconds. It will automatically wake up at the next counting slot that you have programmed. No external sign will indicate that the trap is in active mode (or sleepy depending on the mode you have selected).

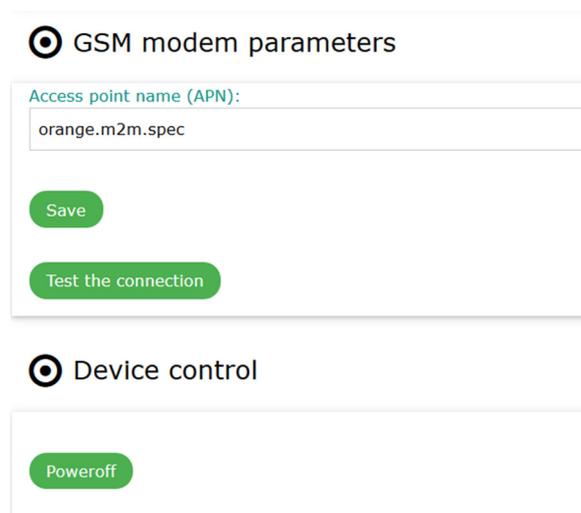


Figure 10: Stop the device by pressing the Poweroff button

## 6 INTALLING STICKY SHEETS

The sticky sheets must be installed very carefully since all the important data are gathered out of images of the visible surface of the foil.

The distance between the foil and the optic has a major importance. There is no automatic focus and every tuning have been made at the end of the production line. Therefore, to get accurate counting and possibly insect specific counters, it is important that the planarity is respected.



Figure 11: respect the ~17cm between the foil and the optic

The ADVANSEE sticky sheets are coming with 6 holes in perfect fit with the supports of the large metallic frame. Please, proceed as indicated in Figure 13.

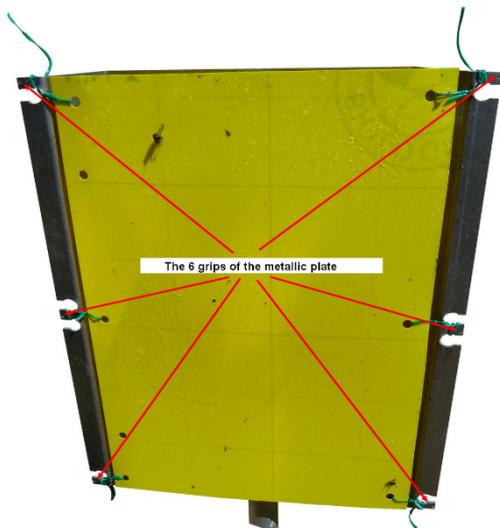


Figure 13: the sticky sheet and the metallic frame



Figure 12: detail of the grip