eGrowr
User Guide

Powered by Wamron electronics

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SECURITY ADVICE

Before starting, we remind some important security mesures.

- Do not leave the multi-socket in areas that could be exposed to water or that could be flooded.
- Do not use unsuitable power supply to power the device.
- Keep the device and probes out of reach of children.
- The Egrowr device is not watertight. Do not expose to water and do not expose to air humidity of over 99%.
- The manufacturer is not responsible for the improper use of de vices or probes.

QUICK START

Power supply connection

Plug the power supply in the port above which is written **Power**.

Wifi Connection

Before starting, download the Egrowr app from the Apple app store or from the Google Play store.

Wifi connection (standard approach)

Note:

If the router has a WPS button option, proceed directly to section "**Wifi connection (simplified with WPS)**". Look for the following logo on the router:

Connect the smartphone to the Egrowr monitor by going to the smartphone Wifi settings and selecting the Egrowr_xxxxxxxxx network.

The password can be found by pressing on the Egrowr device **WiFi** key, then on the **menu** key to reach the second menu.

```
Device WiFi Key:
EGROWR1234
```

Note:
Keep the smartphone close to the Egrowr monitor during this phase of configuration. The password is case sensitive.
If the smartphone alerts that there is no Internet connection, please confirm to stay on current Wifi link.

Once the smartphone is connected to the Egrowr monitor, open the app, go to the menu section, select "add device".

⊕ add device
_____

New Device
0
Disconnected   ⊗
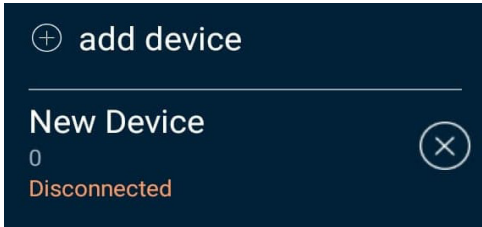
Then select the device that appeared in the list (new device). The smartphone should connect automatically to the Egrowr monitor.

On the smartphone, press on the button "Setup Wifi" at the bottom of the screen, and wait for the right Wifi access points to be listed.

SETUP WIFI   signal   IP adress
              ✕   192.168.4.1
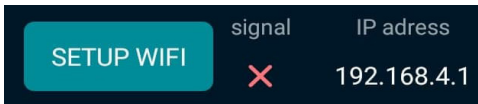
Select the prefered Wifi, enter the required password, and press the "Join" button.

The Egrowr screen shows the following message:

```
AP connection
in progress...
```

Wait until the Egrowr confirms the connection is made.

```
Wifi connected
192.168.1.10
```

On the Egrowr monitor, press for a few seconds the **WiFi** key to enter the Wifi mode selection menu, then select "cloud mode" by pressing on the **menu** key. Save changes by pressing on the **EC cal.** key.

Reconnect the smartphone to the same Wifi network as the Egrowr device (if not done automatically).

Return to the app, select the Egrowr monitor in the device list, press on the IP address section at the bottom right.

CONNECT	signal	IP adress
	✕	192.168.4.1
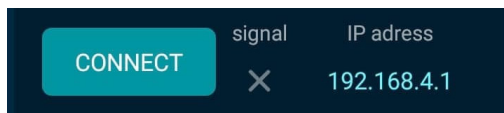
The IP address to enter there can be found in the monitor's menu (press on the **WiFi** key of the Egrowr).

```
WIFI: CLOUD MODE
192.168.1.10
```

Back on the app, press on "show settings", enter the email account login and password then press on "connect" to connect to the Cloud.

The device will then be automatically assigned to this account.

To create an account, please go to **https://egrowr.com/account**

Wifi connection (Simplified with WPS)

If the router is equiped with a WPS button, proceed with the setup by pressing for a few seconds on the **WiFi** key of the Egrowr. Select "cloud mode" by pressing on the **menu** key, then save the changes by pressing on the **EC cal.** key.

Then press the **WiFi** key of the Egrowr, then **menu** , and when the following screen message shows,

```
No Wifi AP
WPS
```

Press on **pH cal.** to activate the WPS mode.

Then press the WPS button on the router, and then on the **menu** key of the Egrowr. Wait for the Egrowr to connect.

Once the Egrowr monitor is connected to the same network as the smartphone, open the mobile app and select "add device" in the menu

⊕ add device
─────────────────────────────
New Device
0
Disconnected   ⊗
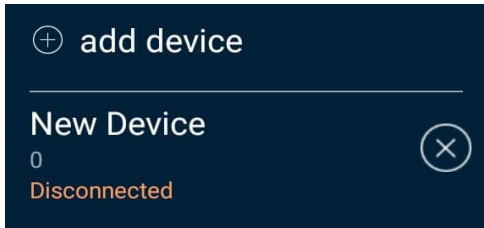
Select the new device and at the bottom of the screen provide the IP address.

CONNECT   signal   IP adress
                  ✕   192.168.4.1
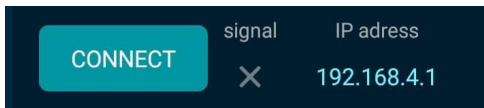
The IP address to add can be found in the monitor's Wifi menu (press the **WiFi** key).

```
WIFI: CLOUD MODE
192.168.1.10
```

Back on the app, press on "show settings", enter the email account login and password (both found on the Egrowr box) then press on "connect" to connect to the Cloud.
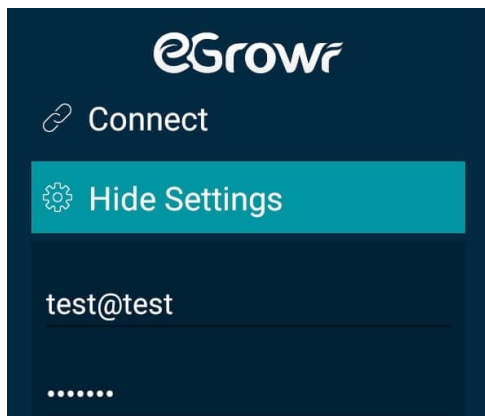
The device will then be automatically assigned to this account.

WiFi Mode

To change WiFi mode, press for two seconds on the **WiFi** key to enter the wifi mode selection menu. To go through the WiFi options, press on the **menu** key. To save changes, press on the **EC cal.** key.

WiFi off

WiFi module is disabled. Measurements are read on the Egrowr screen.

Direct mode

The monitor opens an access point to which a smartphone can be connected in order to send the WiFi credentials.

Local mode

The monitor connects to a local WiFi network, and can be accessed by any device on the same network. No data is sent to the cloud and no direct accesse is created.

Cloud mode

The monitor can be accessed through the local network, the same as local mode, but also sends data to the Cloud and can be accessed from anywhere with mobile data.

Setup

Device placement

The Egrowr monitor can be placed on any type of vertical surface up to 5 mm thick thanks to its magnetic fixation.

Hold the Egrowr monitor against the surface chosen and align the other magnetic piece on the other side of the surface. Once the magnets are well aligned, the Egrowr monitor should stay in place.

Connecting the probes

Plug the pH probe into the BNC port (first from the left).

Plug the EC sensor into the mini jack port next to the BNC port.

Plug the climate probe int the mini jack port (middle).

Caution:
Do not plug any other devices like headphones into the jack port. Plugging any probe into the wrong jack port shouldn't damage the probe, however it is strongly not recommended.

The EC sensor needs up to 10 seconds to send the first measurments and stabilize the value after it is plugged. If no value is displayed after that delay, unplug and reconnect the probe. make sure that the display is on (backlight is switched on).

The Egrowr displays a random pH measurement when no probe is plugged. Once the pH probe is plugged, the value will stabilaze in less than 1 minute.

MENUS & SETTINGS

Main menu

Main menu 1

By defaut, the monitor displays 4 values measured by the probes:

```
EC=2.45  T=25.5C
pH=5.50 Hum=43%
```

- EC : Conductivity of the solution

- pH : Acidity of the solution

- T : Temperature of the air

- Hum. : Humidity of the air

If the probe is not connected or defaulting, the displayed value will be "-.--".

Note:
If the pH probe is absent, the Egrowr can display a random pH measure.

The backlight of the screen and the LEDs switch off after 2 minutes of idleness (no key is clicked on).

Main menu 2

To display the secondary menu, when you are on the main menu, press on the menu key.

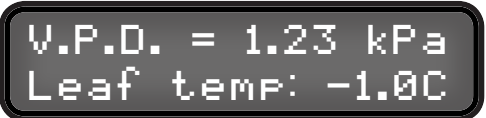The monitor will then display the readings from other sensors:

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```
Water temp=19.2C
light= 90520 lx
```

- **Water temp.** : Temperature of the water
- **light** : light intensity in lux

Main menu 3

To display the third menu, press on the **menu** key once again.

The Egrowr will then display the calculated V.P.D. value :

```
V.P.D. = 1.23 kPa
Leaf temp: -1.0C
```

- **V.P.D.** : Vapor pressure deficit in KiloPascal
- **Leaf temp** : the difference between the measured temperature by the climate probe and the actual leaf temperature.

The leaf temperature difference can be changed in the setting menu.

To return to the main menu, press again   the **menu** key.

Or, after 20 seconds of idleness (no key pressed), the monitor returns automatically to the main menu.

Wifi menu

Wifi menu 1

To access the Wifi menu, press the **WiFi** key.

The screen displays the WiFi mode and the IP address of the device.

```
WiFi: CLOUD MODE
192.168.1.10
```

Wifi menu 2

To access the secondary Wifi menu, press the **menu** key.

If the monitor is connected to a WiFi network, the screen displays the network name (SSID) and the signal strenght:

```
wifi_home
[####_] -49dbm
```

If the monitor is not connected to any WiFi network and is in DIRECT MODE, the screen displays the Egrowr's WiFi key that is used to connect any smartphone or computer to the Egrowr's WiFi access point:

```
Device WiFi Key:
EGROWR1234
```

If the Egrowr is not connected to any WiFi network and is in LOCAL or CLOUD MODE, the screen displays the WPS connection option. By pressing the **pH cal.** button, the Egrowr enters the WPS configuration mode :

```
No WiFi AP link
WPS
```

Wifi menu 3

To access the third Wifi menu, press the **menu** key again.

The screen displays the server to which the Egrowr sends the measurements in CLOUD MODE. You can switch servers in the setting menu.

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```
    Cloud server:
1.Server .A.
```

To return to the main menu, press the **WiFi** key.

To return to the main Wifi menu, press the **menu** key.

Or, after 20 seconds of idleness (no key pressed), the Egrowr returns automatically to the main menu.

LEDs

The Egrowr as 2 LEDs:

- **cloud** : indicates the status of the connection to the cloud server

- **local** : indicates the Wifi connection status to the local network

When the 2 LEDs are switched off, the Egrowr's wifi module is off.

When **local** flashes, the monitor is not connected to any Wifi access point, or there is an ongoing attempt to connect to the access point.

When **local** is switched on without flashing, the Egrowr is connected to a Wifi access point.

When **cloud** is switched off, the Egrowr is not in Wifi Cloud mode.

When **cloud** flashes, the Egrowr is on WiFi Cloud mode but cannot send data to the server.

When **cloud** is switched on without flashing, the Egrowr is in Wifi Cloud more and is sending data to the server.
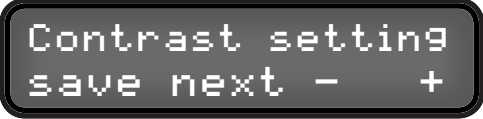
Settings menu

Entering setting mode

To enter the settings, make a long press on the **menu** key.

Press the **EC cal.** ("next") to go to the next setting or press **pH cal.** ("save") to save the settings and go back to the main menu.

1. The screen contrast

```
Contrast setting
save next -    +
```

Change the constrast by pressing the **WiFi** or the **menu** key ("-" or "+").

2. The leaf temperature difference

```
leaf temp: -1.0C
save next -    +
```

To calculate the V.P.D., the monitor needs the difference temp. between the air temperature and the leaf temperature. Both temperatures should be measured by a infrared thermometer pointing under the highest leaf of the plant and on the space surrounding the plants. If there is no access to an infrared thermometer, leave "-1.0C" as leaf temperature value.

Change the leaf temperature difference by pressing the **WiFi** or the **menu** key ("-" or "+").

3. The temperature unit

```
Tem. unit:Celcius
save next change
```

Press the **menu** key ("change") to switch between Celcius and Fahreneit temperature unit.

4. The electro-conductivity unit

```
EC unit: uS/cm
save next change
```

Press the **menu** key ("change") to switch between uS/cm and different ppm unit.

5. The display backligh switch off delay

```
Display Off: 120s
save next -    +
```

Choose the delay after which the Egrowr switch off the LEDs and display backligh when no actions are made on the device.

6. The EC temperature compensation ratio

```
EC t. var.: 2.0%
save next -    +
```

The EC measurements are temperature compensated. Usually, there is a 2% variation per degree Celcius that needs to be taken into account. However, this value slightly depends on the type of ion disolved in the solution. If there is an important variation in the EC value when the solution tempeature changes without actually changing the EC, change this setting to best match the characteristics of the solution.

7. The WiFi channel in the DIRECT MODE

```
WiFi channel:  06
save next -    +
```

Choose the WiFi channel that will be used in the DIRECT MODE when the Egrowr sets-up its own WiFi access point. This setting can be useful if it is difficult to connect directly to the Egrowr while in DIRECT MODE.

8. The cloud server

```
1.Egrowr Cloud
save       change
```

Change the server to which the Egrowr sends data in CLOUD MODE. Please leave this factory setting as is except in case of support demand.

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PROBE CALIBRATION & MAINTENANCE

pH probe

Plug the pH probe in the monitor's socket, above which is written **pH**, by aligning the lugs of the BNC connector and giving it a quarter turn.

Caution:
pH probes are fragile. Do not touch or clean the tip and do not let it dry out.
We recommend to store the electrode in a solution of KCl. If KCl storage solution is not available, use a pH 4 or 7 buffer solution. DO NOT store the electrode in distilled or deionized water, this will cause ions to leak out of the glass bulb and render the electrode useless. If the tip dries out, try to revive the probe by placing it in the storage solution for few hours, then place it in a pH 4 solution for few hours.

Calibration

To enter the pH probe calibration menu, press continuously for a few seconds on the `pH cal.` key.

Note:
To cancel the calibration process, press the `pH cal.` key anytime during the calibration process

The following message will display:

```
Put your probe
in pH 7 sol.      >
```

Proceed with instructions, by placing the pH probe in the pH 7 solution, and then press on the **menu** key. Wait until the value shown is stabilised.

```
Wait for stable
value: 0512      >
```

Note:
For pH 7 solution, the value should be 512 (+/- 30)

Once it is, press on the **menu** key to continue. The Egrowr will then display the following message:

```
Put your probe
in pH 4 sol.     >
```

Remove the probe from the pH 7 solution, rince it in distilled water, and place it in the pH 4 solution. Once it is placed in the solution, press on the **menu** key to continue.

```
Wait for stable
value: 0805      >
```

Note:
For pH 4 solution, the value should be 800 (+/- 30). The longer the pH probe stays in the solution, the more accurate will be the measurement. Wait for the value to be stable for at least 20 seconds. If the value is still changing after few minutes, the pH probe needs to be revived or replaced.

Wait until the value is stabilized, then press on the **menu** key to finish the calibration process.

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TheEgrowr monitor will then display the following message confirming the calibration is completed.

```
Calibration data
     SAVED OK
```

Conductivity probe

Calibration

Plug the EC sensor before starting the calibration process, verify that the probe is well plugged to the Egrowr and functions properly. If the probe is not plugged properly, the following display will appear:

```
No probe - can't
calibrate
```

Caution:
Place the EC sensor at medium height within the solution. The metal electrodes should not be closer than 2cm of the bottom or the wall of the tank, otherwise the calibration would be flawed.

To enter the calibration menu of the EC sensor, press continuously for a 2 seconds on the **EC cal.** key.

Once in the calibration menu of the EC sensor, the following display will appear :

```
Insert probe in
known EC sol.      >
```

If not done yet, place the probe in a solution with a known conductivity and which lies in the measuring range of the probe, then press on the **menu** key to start.

The Egrowr will display the following screen :

```
EC= 1.29 mS/cm
  −   exit   +    ok
```

To adjust the conductivity value so as to correspond to the value of the calibration solution, press on the **pH cal.** and **WiFi** keys.

Once the conductivity value displayed is equal to the one of the calibration solution, press on the **menu** key to save the configuration.

The Egrowr will display the following screen :

```
Calibration data
     SAVED OK
```

Note:
To cancel the calibration process, press again on **EC cal.** .

Press on both keys corresponding to the '+' and '-' to reset the calibration data. This is useful if the monitor display 0.00 o 9.99 during the calibration process.

Plecement

The EC sensor has an integrated magnet and the box includes an extra magnet to be placed on the external wall of the tank to hold the EC sensor in place on the internal wall. Place the sensor against the internal side and align the magnet on the external side. The electrodes shouldn't be closer than 2cm from the tank walls.

Climate probe

The climate probe can be placed anywhere under the leaves of your plants, or any other location that would provide a relevant measure of the climate in the grow area. While placing the climate probe, make sure the cable is well separated from the rest of the set-up cables to avoid any interference.

> **Caution:**
> Avoid placing the climat probe in direct UV light, and avoid contact with water. The climate probe is not watertight but only spray proof.

FIRMWARE UPGRADE

In order to upgrade the firmware, reboot the Egrowr and press the **menu** button while booting when the Egrowr screen displays:

```
        Egrowr
ser:1234-5678-90
```

Wait for the system to load.

If the device **local** LED is on, the following screen should be displayed:

```
192.168.1.10
ch:6     cloud exit
```

Press the **WiFi** key to start automatic online firmware upgrade. The latest available upgrade will be intalled.

```
Upgrade status:
Writing Flash...
```

After the process is done, the Egrowr will reboot with the new firmware.

If the `local` LED is off, the firmware can be upgraded by connecting the smartphome directly to the Egrowr.

First download the firmware with the mobile app
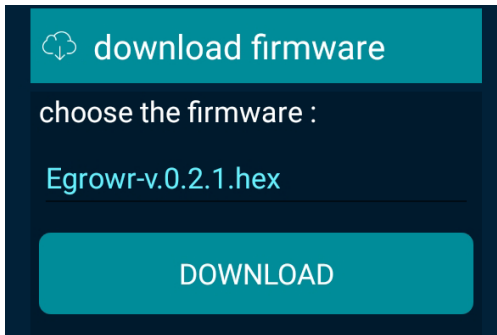
Then find the right WiFi access point ("Egrowr_XXXXXXXXX") and connect the smartphone to it.

Go back to the mobile app and select the device to be upgraded. Enter the IP address 192.168.4.1 in the IP field on the bottom right corner of the screen.
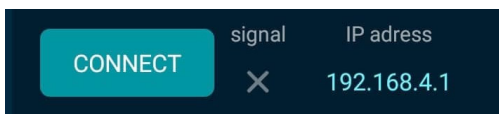
The App should connect and display a "start upgrade" button.

Press the button to launch the process. Once done, the device will reboot. Reconnect the smartphone to the same WiFi network as the Egrowr and re-enter the right IP address.

WARRANTY

Wamron Sp. z o.o. gives the Purchaser warranty on the Egrowr measuring device and the probes for the following period:

- Egrowr device, power supply, EC and climate probe : 24 months.

- pH probe – 6 months.

Wamron Sp. z o.o. gives warranty consisting of repair at the manufacturer's premises or providing goods free of any defects. The cost of transport to the repair place during the whole warranty period is covered by the Purchaser.

The warranty period begins on the date of shipping.

1. The warranty only covers defects in the goods, i.e. hidden defects in workmanship or hidden defects in material.

2. The conditions to be able to use the warranty rights are in particular:

      a) Proper storage and maintenance,

      b) Proper installation of the devices,

      c) Proper use, according to the manual.

3. Warranty rights are waived especially in case of unauthorized repair, if the Egrowr was used contrary to its intended use or was flooded with any liquid. The same applies to the climate probe.

4. The warranty does not cover damage caused by external, mechanical, thermal, and chemical factors, improper use, and normal wear and tear.

5. The EC sensor Warranty rights are waived if the latter has experience an electrostatic discharge through its electrodes.

6. The pH probe Warranty rights are waived if he latter has not been stored in the proper storage solution, or if the tip has been left in a dry environment.

TECHNICAL SPECIFICATIONS

General

Dimentions: 81x60x40 mm

Weight: 350 gr

Power: 5V - 500mA

Working temperature: 0 - 40 deg C

Storage temperature: 0 - 80 deg C

Waterproof : Splashproof only

Wifi

Range: 100m freespace

Frequency: 2.4 - 2.5 GHz

Security: WPA2/WPA2-PSK

pH measurement

Compatibility: all pH probe

Connector: BNC

Mesurement range: 3 - 11 pH

Accuracy: +/- 0.1 pH

Resolution: 0.01 pH

Conductivity measurement

Connector: stereo jack 3.5 mm

Mesurement range: EC 0.01 - 9.99 mS/cm and Temp. 1 - 40 deg C

Resolution: EC 0.01 mS/cm and Temp. 0.1 deg C

Accuracy: EC 2% and Temp. +/- 0.5 deg C

Life span: > 1 years

Working temperature: 5 - 40C

Storage temperature: 0 - 80C

Waterproof: Yes

Climate measurement

Connector: stereo jack 3.5 mm

Mesurement range: 0-50 deg C and 0-99% RH

Accuracy: +/- 0.5 deg C and +/- 2% RH

Resolution: 0.1 deg C and 0.1%RH

Working temperature: 0 - 50 deg. C

Storage temperature: 0 - 80 deg. C

Resitance: IP64 : dust and spray resistant

Light measurement

Accuracy: +/-15%

Resolution: 1 lux

Support contact: egrowr@egrowr.com