



# INSTRUCTION AND OPERATING MANUAL, DUTCHGRO GROWCONTROLLER

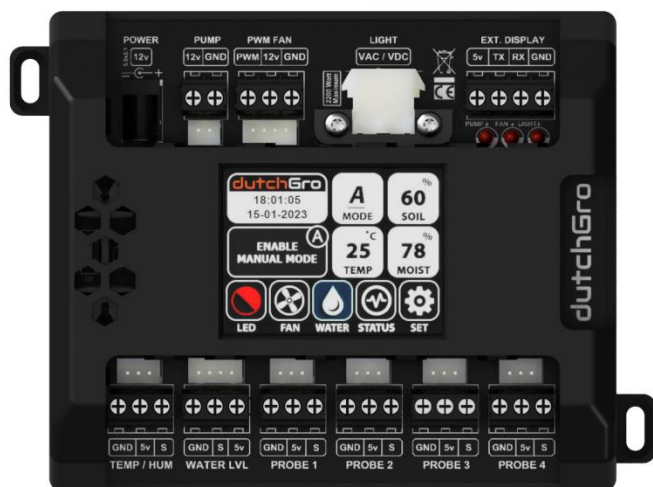
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This Instruction and operating manual provides information how to use and operate the dutchGro Grow Controller, all users should read this Manual carefully and follow the instructions to safely operate their Grow Controller, the manual may be updated when necessary , please visit our website <http://dutchgro.com> to download the latest version of the Manual.

## What is in the box?

1x dutchGro unit



1x Power adapter



1x Water Level sensor



1x Soil probe



1x Temp & Hum sensor



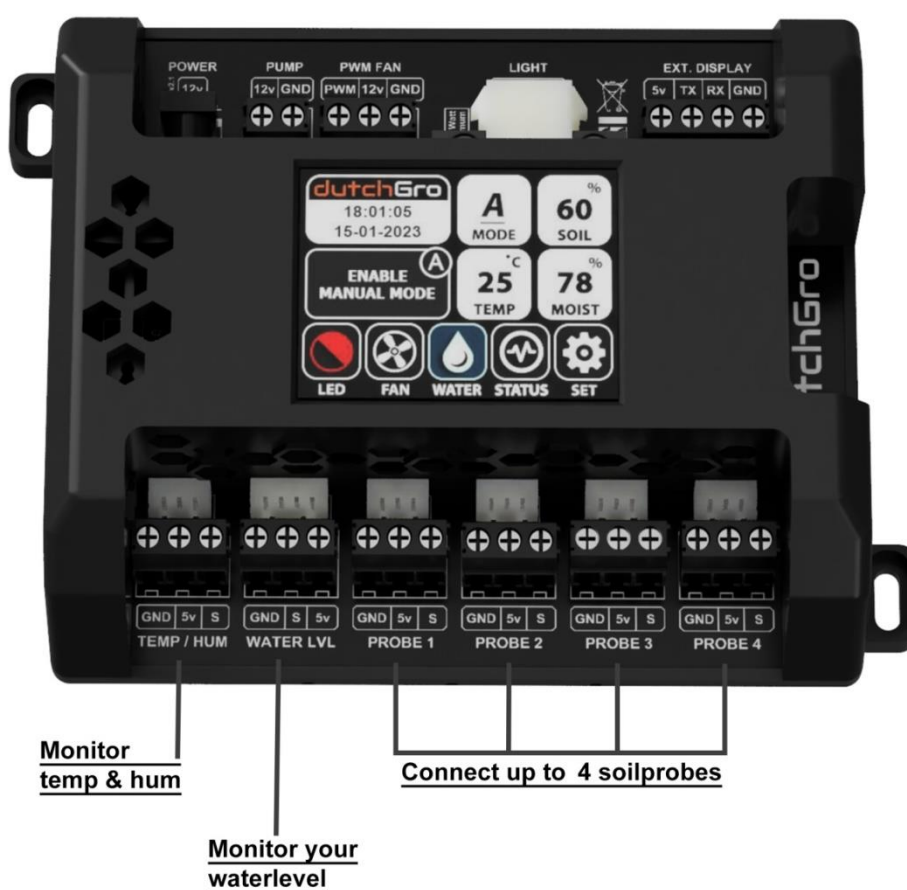
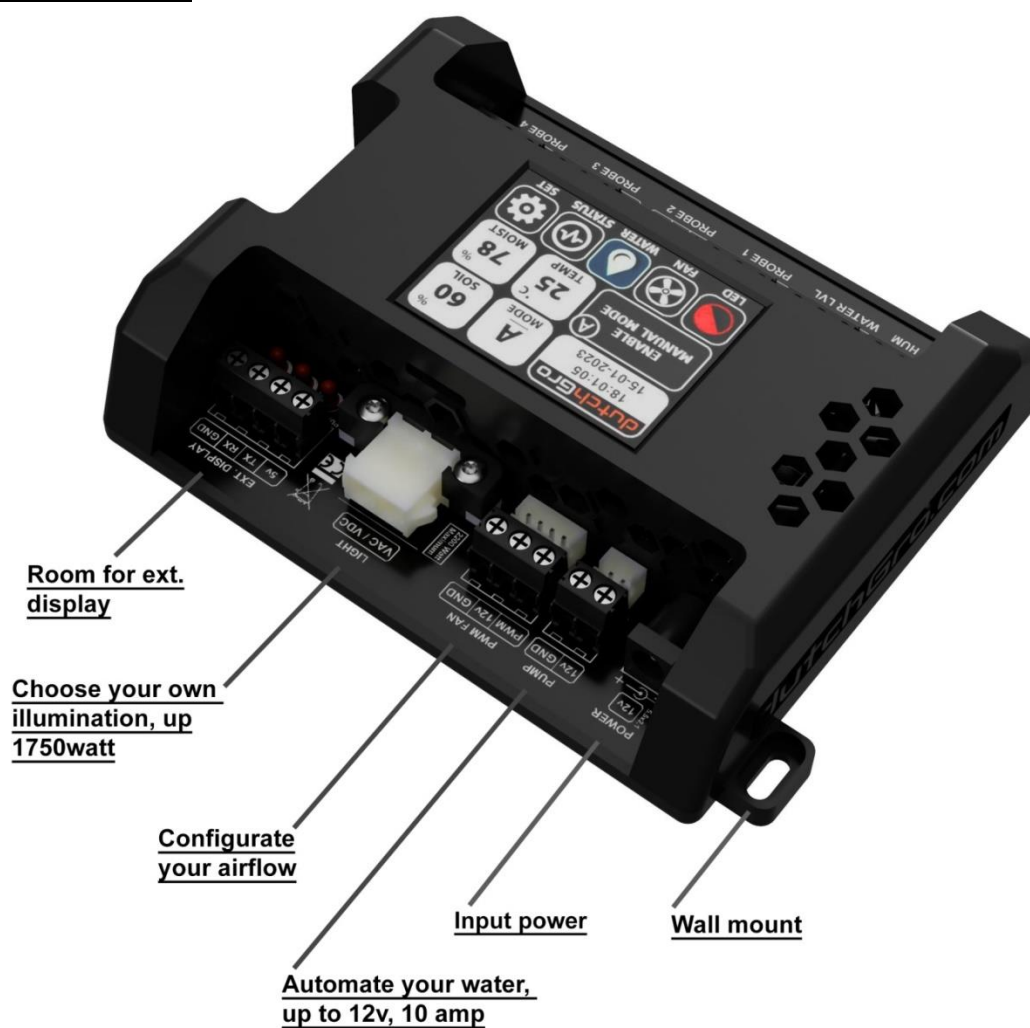
1x Light cable



1x 3 way PWM splitter



## General connections

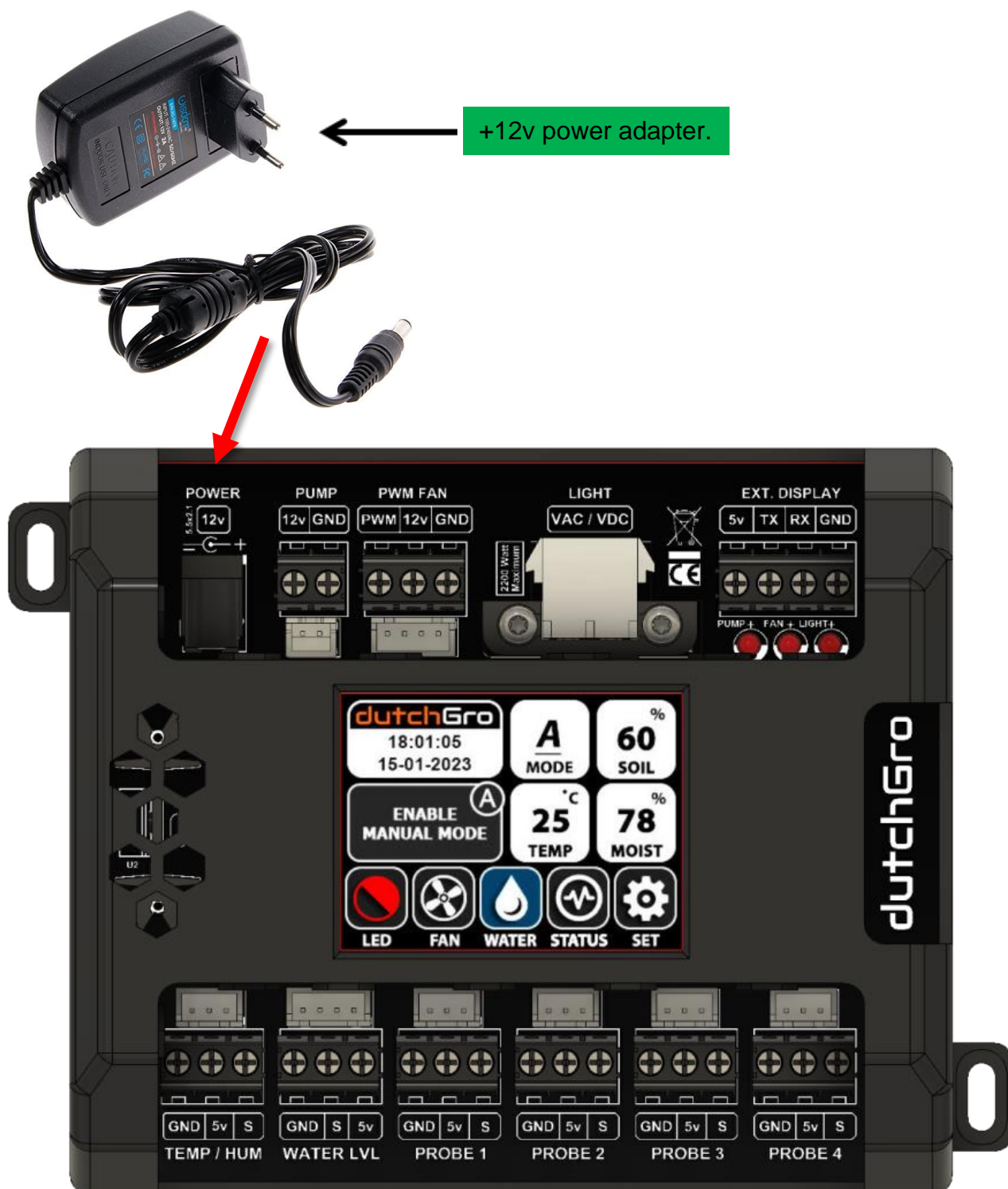


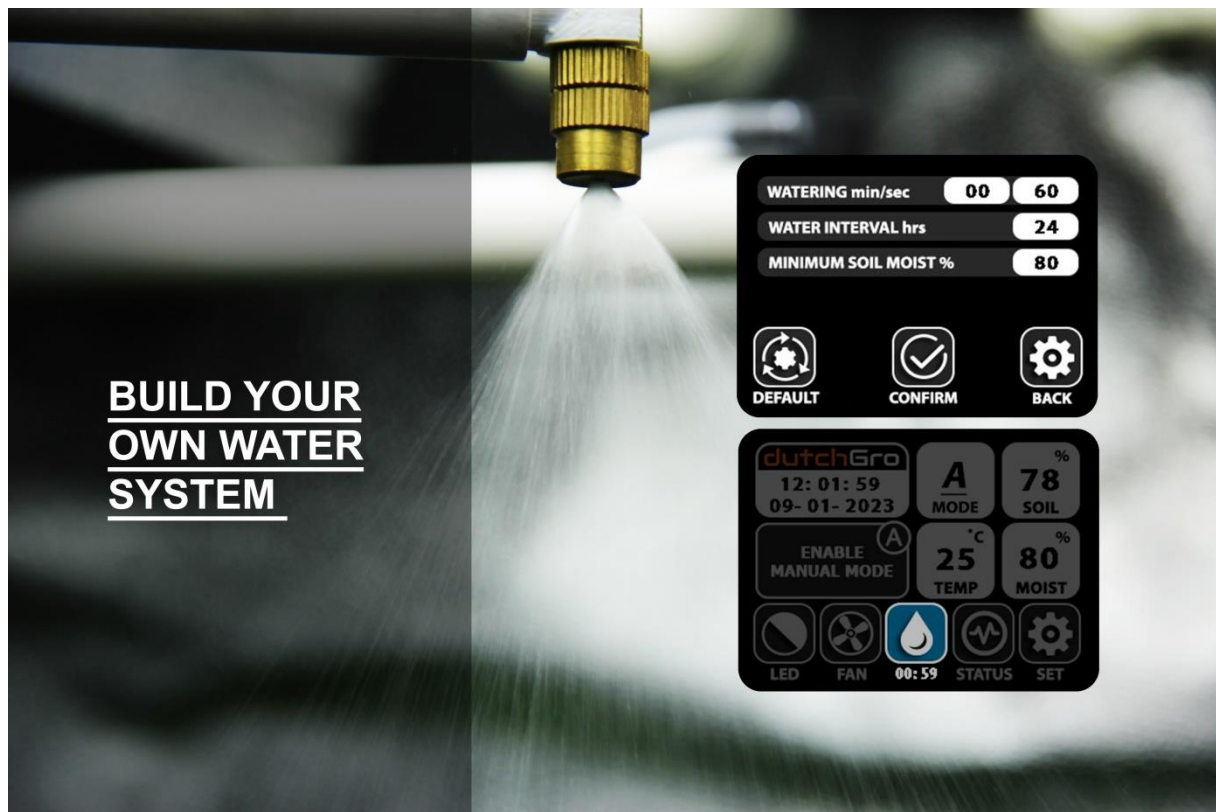
## Input power



**Always unplug the power adapter first before connect any sensor!**

\*Once you unplug the power, all the setting will be saved, the configured cycle continues in the background.





This laboratorial pump is a good option.



<https://www.tinytronics.nl/shop/en/mechanics-and-actuators/motors/pumps/water-pump-12v>



\*Any +12v pump can be connected, if the pump draws more power than 2 Amp - the power adapter needs to be replaced according to specification of the pump, you can find the specifications on the backside of your power adapter.

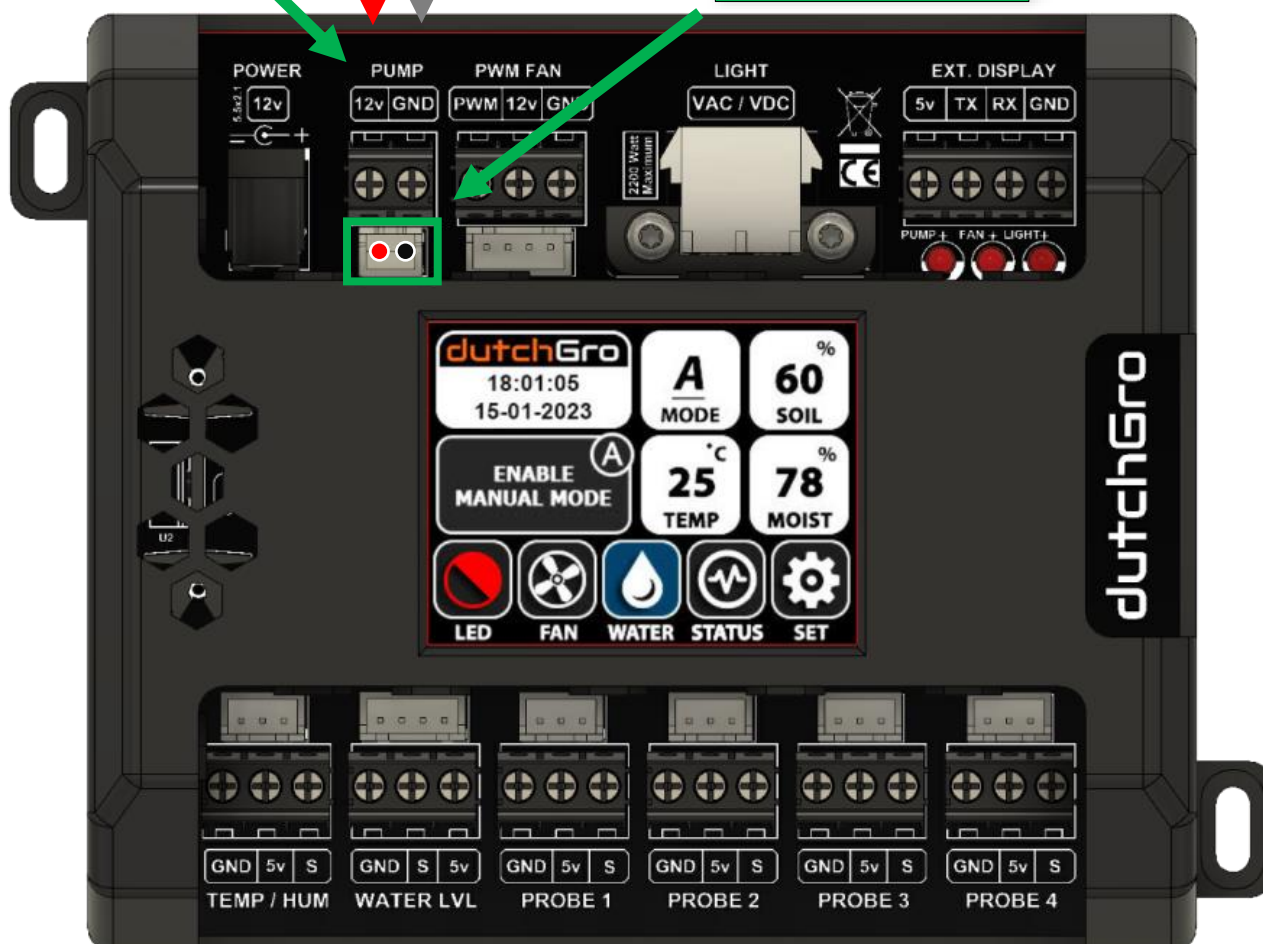


+12v pump max  
10 amp can be  
connected here

+12v

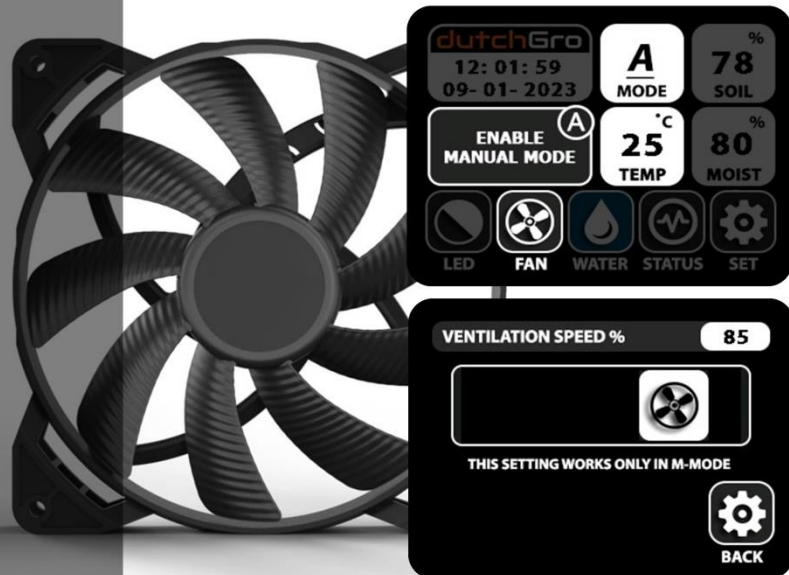
Ground

Male JST two pin  
connector 2.54 mm  
can also be used



## PWM Fan

AIR FLOW  
CONTROL



Connect up to five PWM fan's

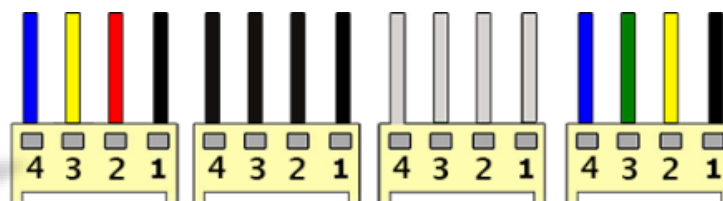


\*Wire diagram: Is your fan matching these colors?

\*Need support? Contact: [info@dutchgro.com](mailto:info@dutchgro.com)



Check the wire colors first before connecting the fan

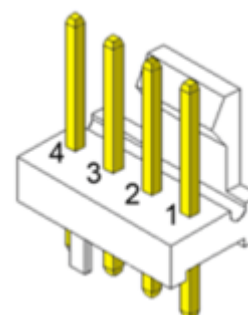


1	Ground	Black	Black	Gray	Black
2	+12v	Red	Black	Gray	Yellow
3	Tach/Signal/Sense	Yellow	Black	Gray	Green
4	Control/PWM	Blue	Black	Gray	Blue

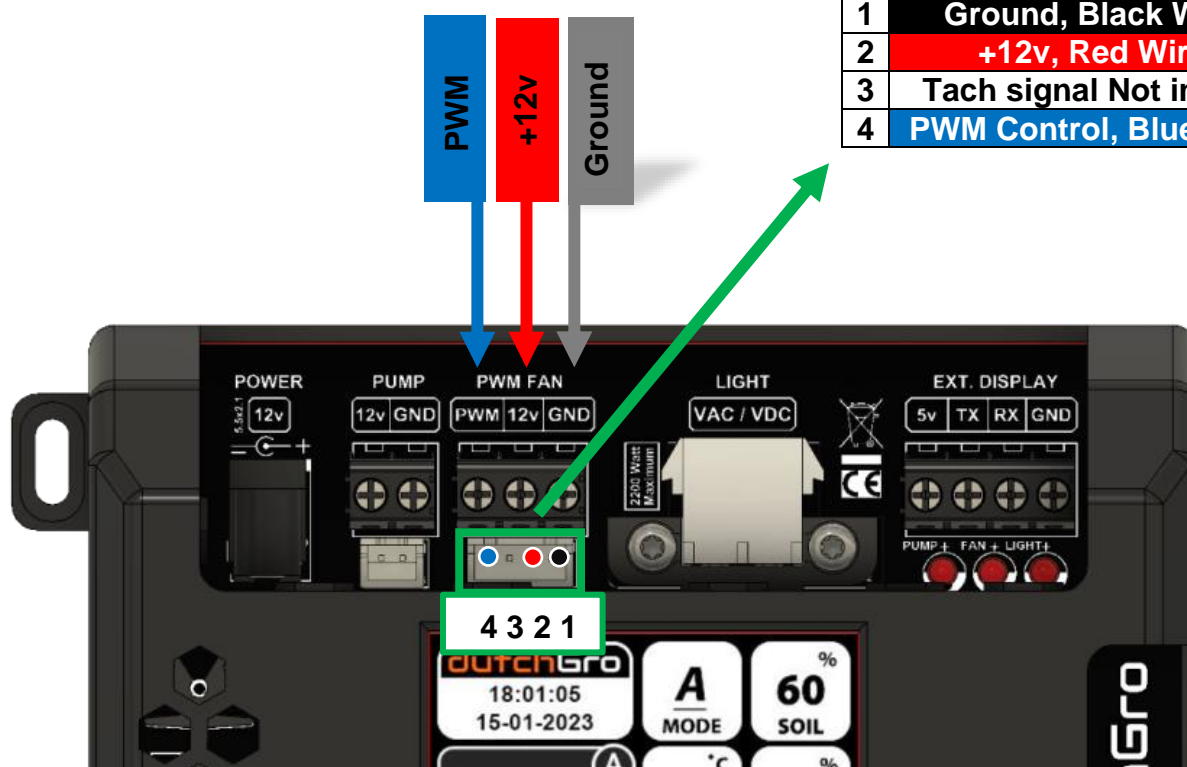
\*Fan will not run automatically in auto mode when the Temp & Hum sensor is not connected, because there are no readings.



Make sure you connect the correct wires; otherwise you will damage the microcontroller!




1	Ground, Black Wire
2	+12v, Red Wire
3	Tach signal Not in use
4	PWM Control, Blue Wire





## Light/ Illumination



secret jardin

**CHOOSE  
YOUR OWN  
ILLUMINATION**

**dutchGro**  
12: 01: 59  
09- 01- 2023

**A**  
MODE

78 %  
SOIL

**ENABLE  
MANUAL MODE**

25 °C  
TEMP

80 %  
MOIST

LED FAN WATER STATUS SET

21: 00: 05

LIGHT ON hrs/min 06 00

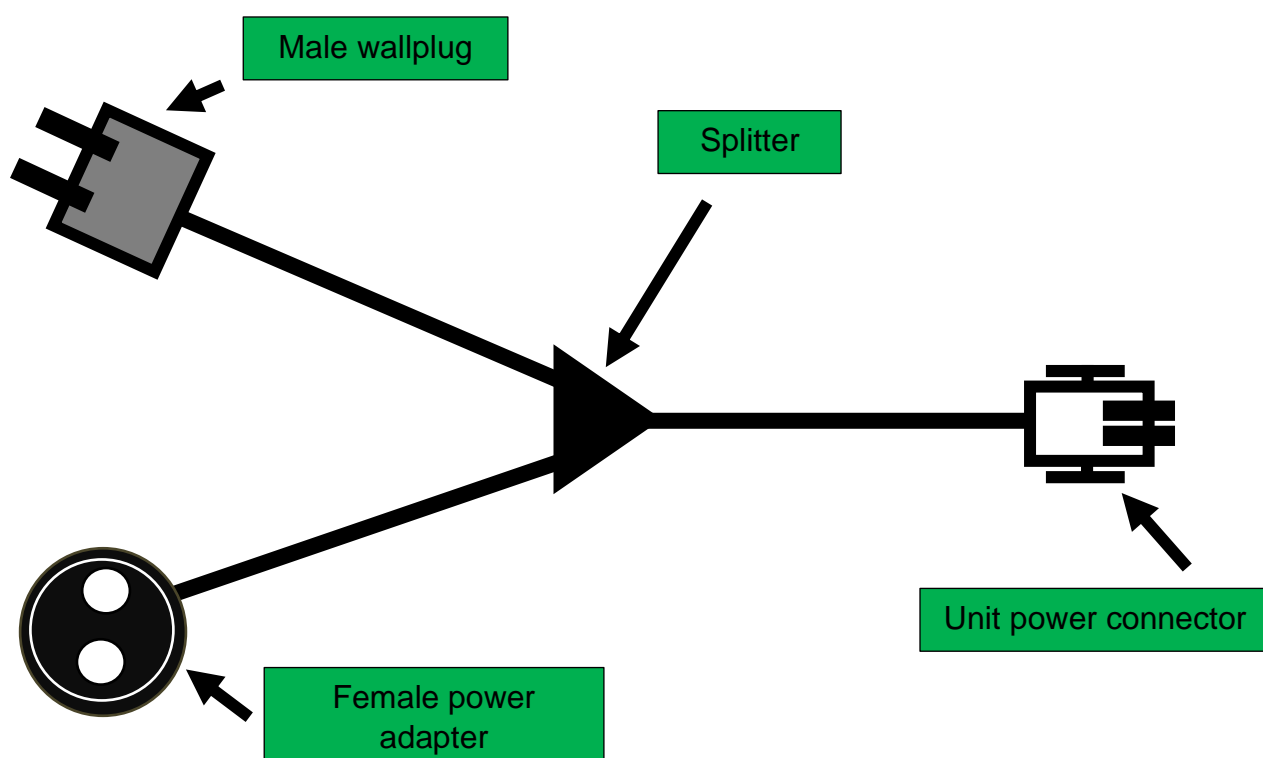
LIGHT OFF hrs/min 22 00

DEFAULT CONFIRM BACK





Light cable; 12v /230v  
Max load 1750watt



1

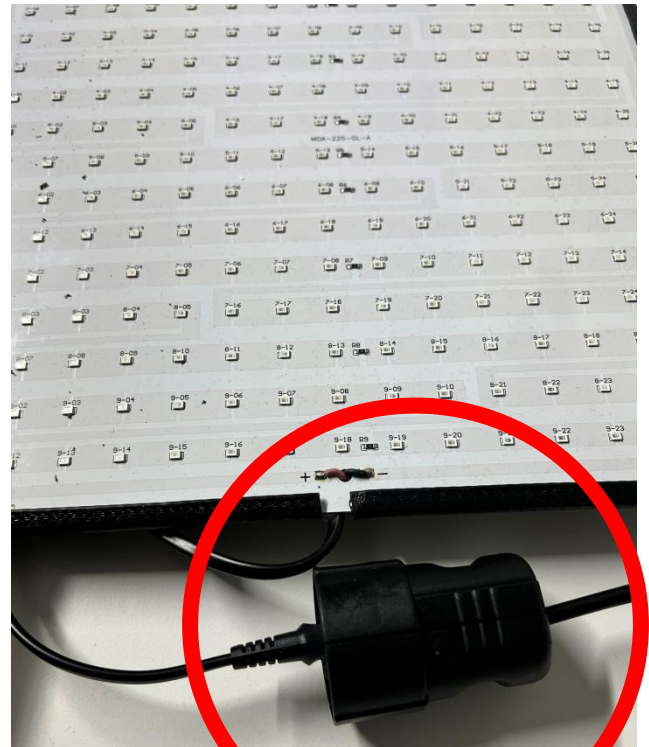
Connect the male plug  
in to the wall contact



2

11

Connect the Light plug in to the  
female power adapter



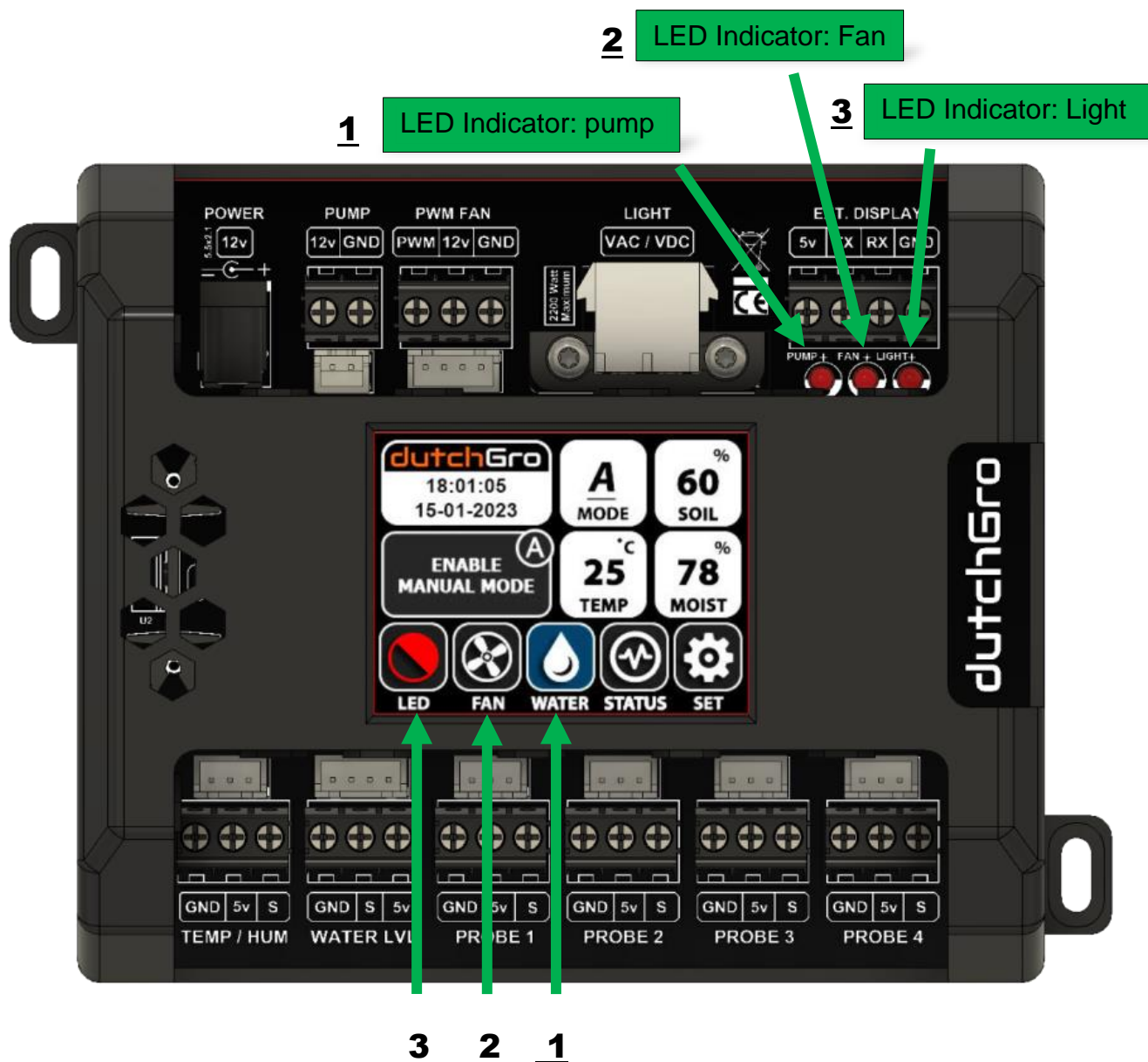
3

Connect the white male connector in to the unit and control  
the light from the display





## LED indicators





## EXT. Display

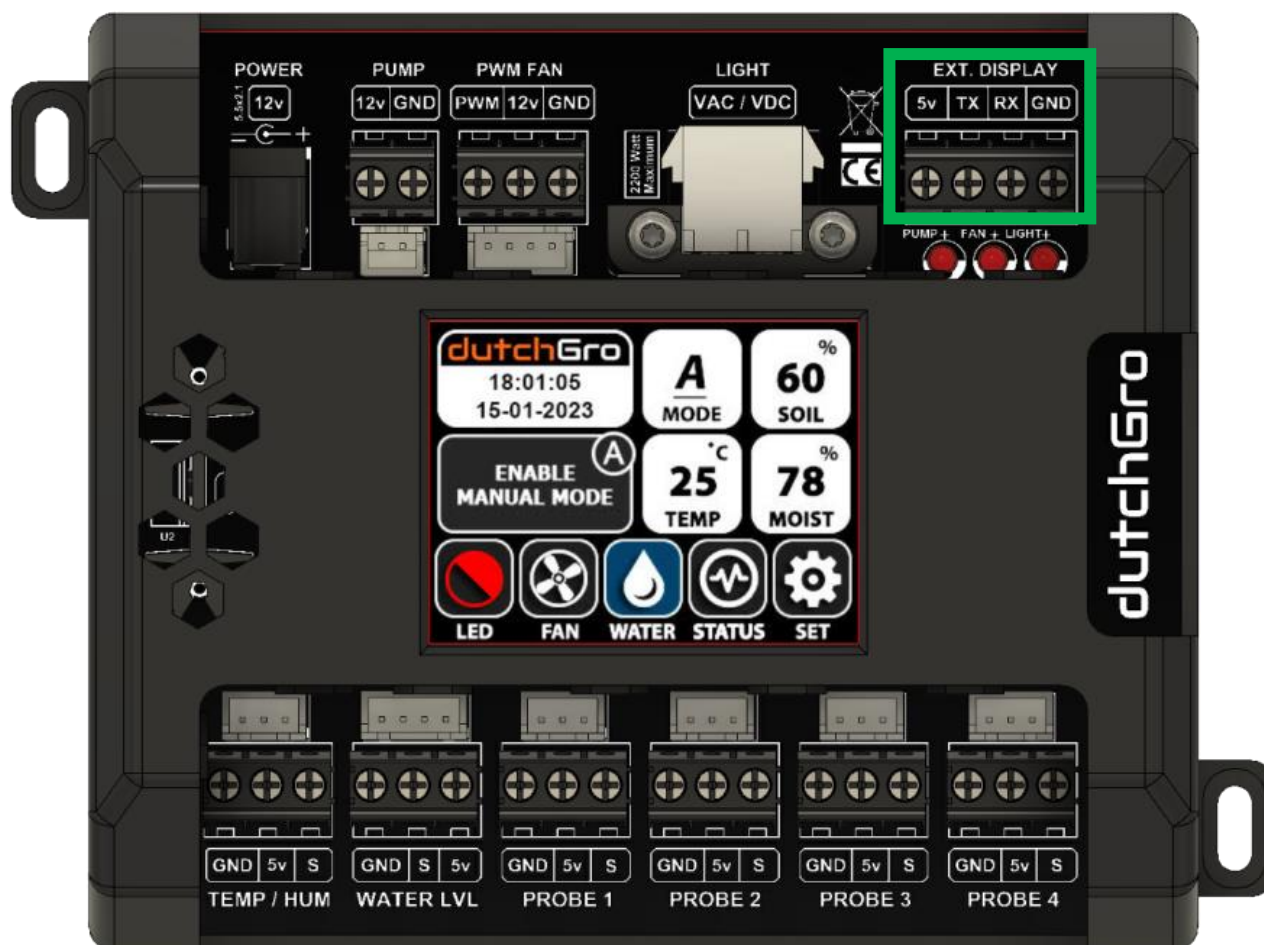
A free enclosure for an external display can be downloaded at:

<https://www.thingiverse.com/thing:3611737>

<https://www.tinytronics.nl/shop/nl/displays/embedded/nextion/nexion-discovery-nx3224f024-hmi-display-2.4-inch-320x240-met-touchscreen>

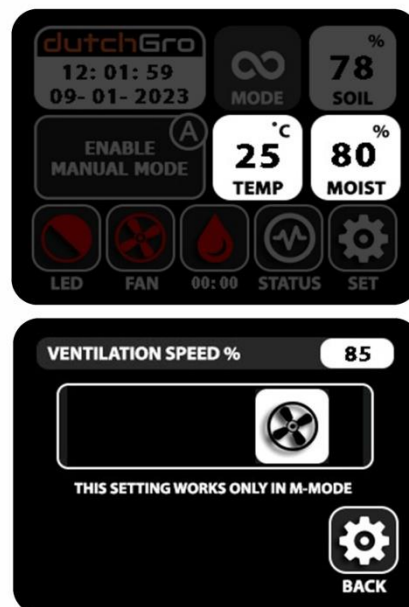
- Nextion Discovery NX3224F024

If you want to connect an external display, You can use the NX3224F024. Please contact the support team on the website; [dutchgro.com](https://dutchgro.com), we will guide you through the process how to connect.

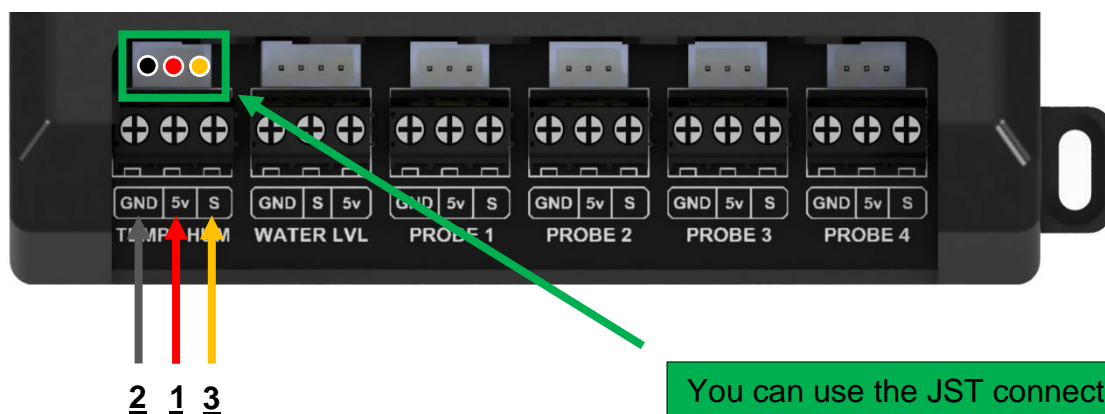


## TEMP & HUM sensor

MONITOR  
HUMIDITY &  
TEMPERATURE



<https://www.tinytronics.nl/shop/en/sensors/air/humidity/am2301-thermometer-temperature-and-humidity-sensor>



You can use the JST connection or the screw terminal

1	+5v, Red Wire
2	Ground, Black wire
3	Signal, Yellow Wire



Use the DHT21AM2301 sensor.  
Other sensors might work with  
similar specifications

---

\*Fan will not run automatically when the Temp & Hum  
sensor is not connected in because there are no  
readings/ value

## Water level sensor



These Liquid Switch models will work

- XKC-Y25-RS485
- XKC-Y25-PNP
- XKC-Y25-NPN
- Other sensors might work with similar specifications



You can use the JST 2.54 mm connection or the screw terminal



**GND**  
**S**  
**+5v**

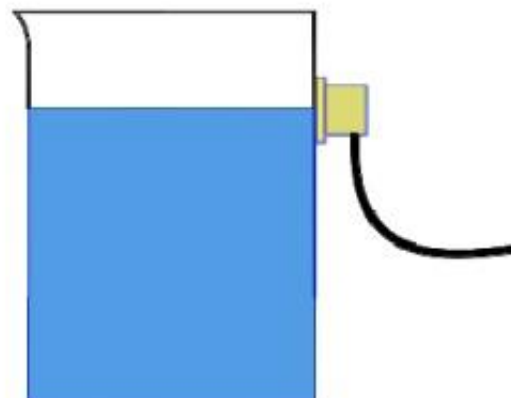
<b>GND</b>	<b>Ground, Blue Wire</b>
<b>S</b>	<b>Signal, Yellow Wire</b>
<b>+5v</b>	<b>+5v, Braun Wire</b>
<b>M</b>	<b>Signal, black wire not in use</b>

### Sensitivity Adjustment:

Rotate counterclockwise to increase sensitivity  
Rotate clockwise to reduce sensitivity.

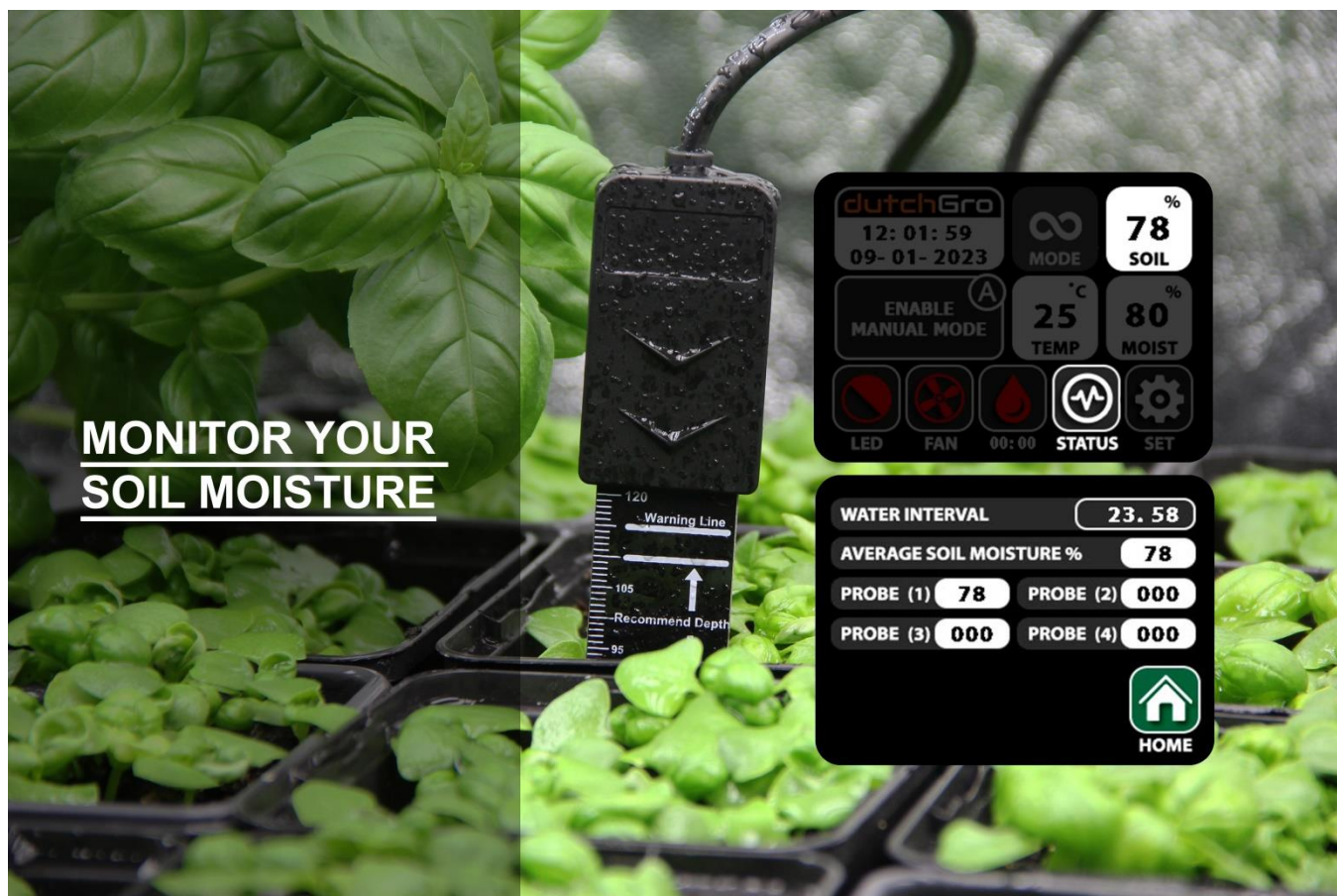


By low water level u will see an indication on the display





## Soil probe

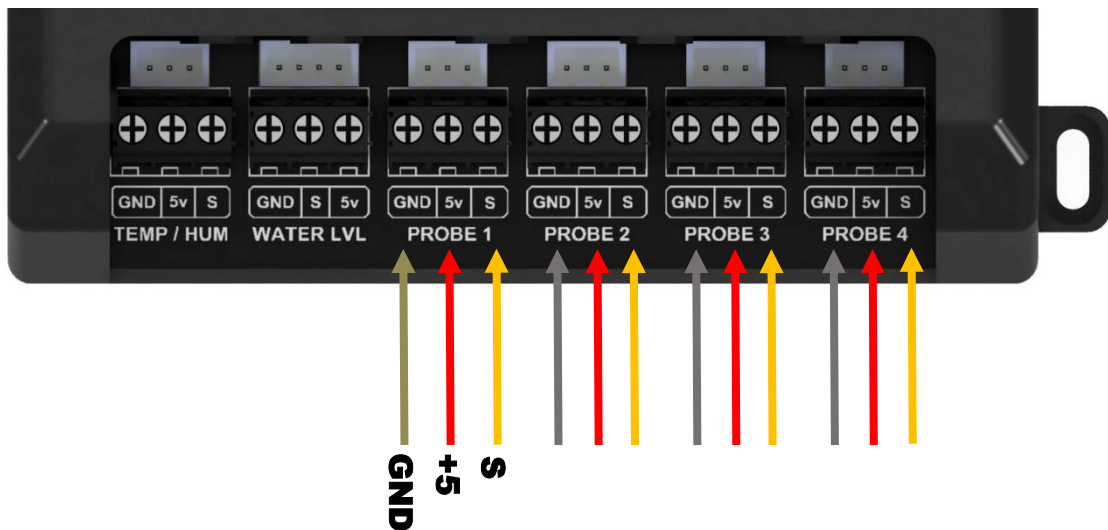


MODEL: DFROBOT-SEN0308

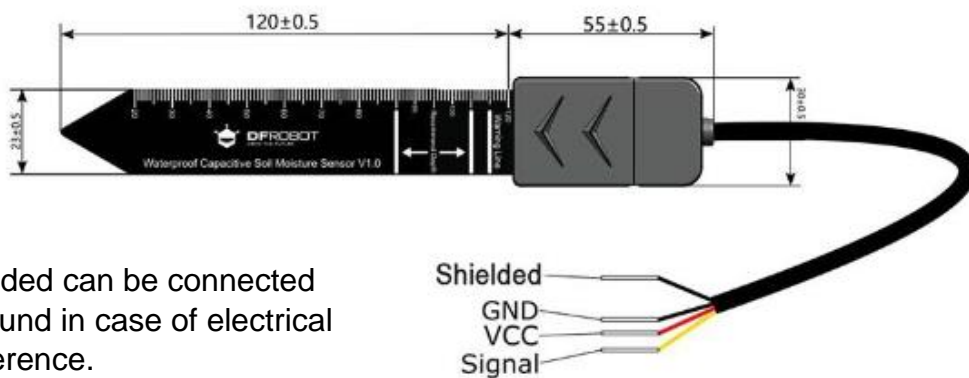


\*There is room for four Soil Probes, other soil probes than DFROBOT – SEN0308 may not work at this moment.

[www.tinytronics.nl/shop/en/sensors/liquid/dfrobot-analog-waterproof-capacitive-soil-moisture-sensor](http://www.tinytronics.nl/shop/en/sensors/liquid/dfrobot-analog-waterproof-capacitive-soil-moisture-sensor)

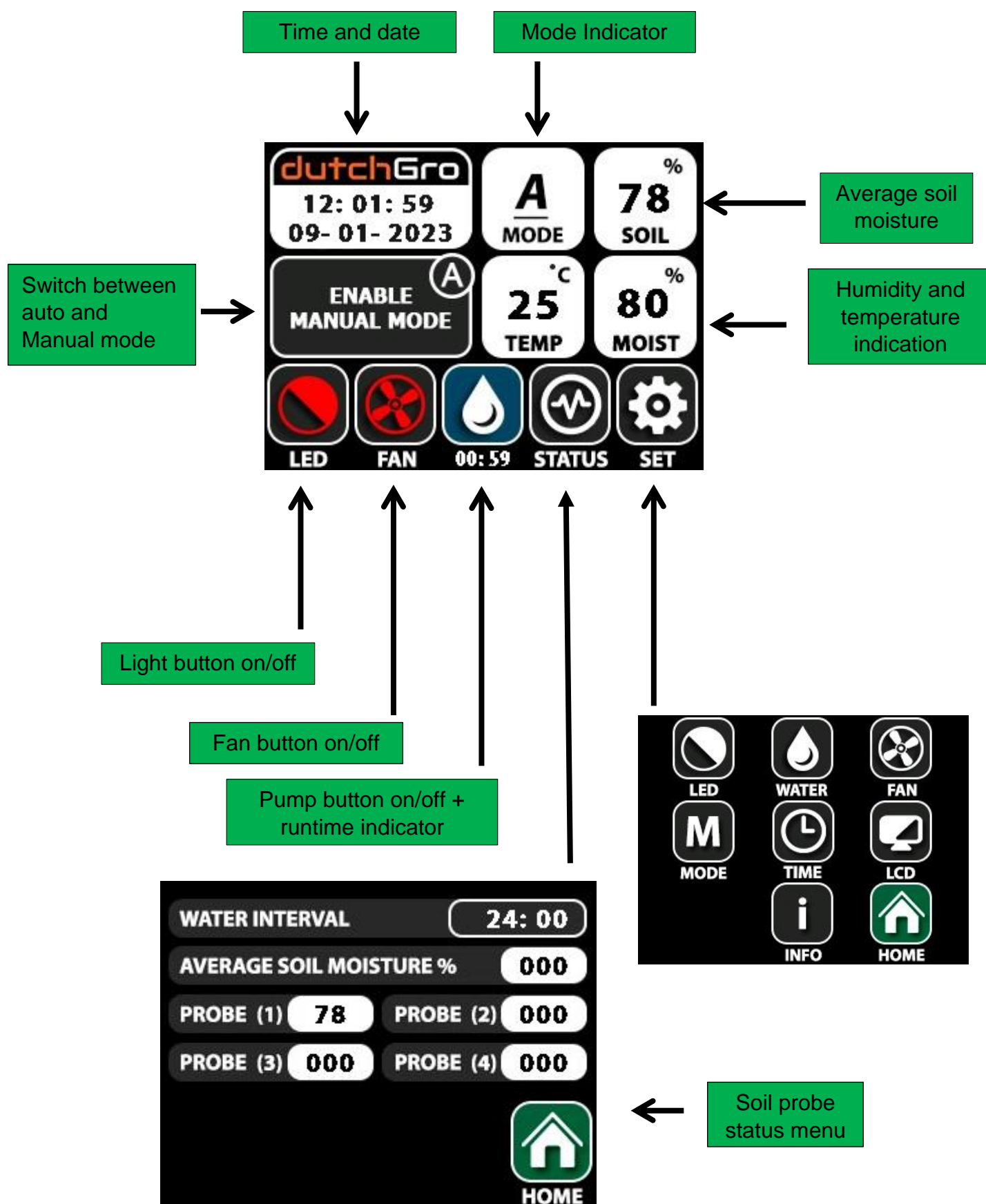


GND	Ground, Black wire
+5v	+3v or +5v , Red Wire
S	Signal, Yellow Wire



\*Shielded can be connected to ground in case of electrical interference.

## Display indicators

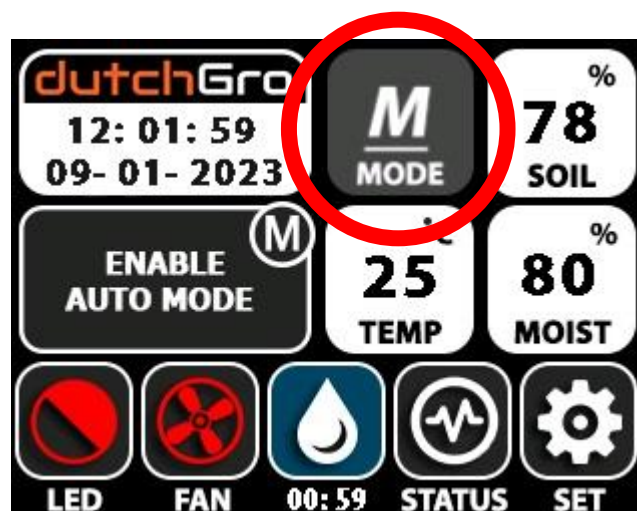


## Auto/ Manual mode

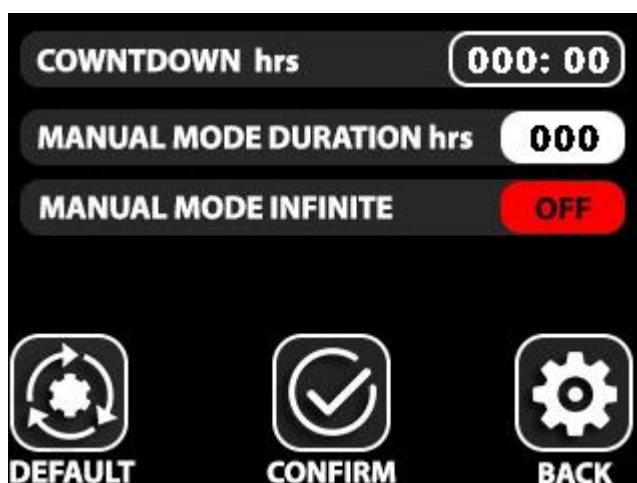
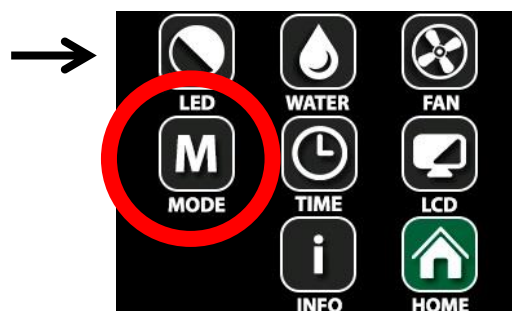


\*In auto mode, light, ventilation and water runs automatically according to the settings.

\*In auto mode, the icon's; LED, FAN and Water are locked, Icon's cannot be controlled.



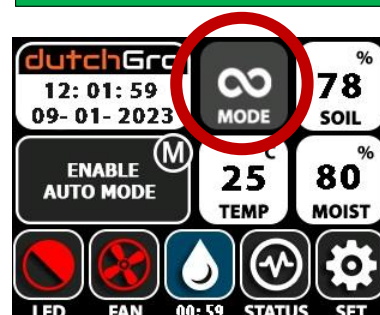
\*In Manual mode; light, ventilation and water can be controlled manually. Icon's; LED, FAN, WATER are no longer locked.



Countdown indicator, how many hours left to automode.

Set manual mode duration

Infinite mode, override auto and manual mode infinite

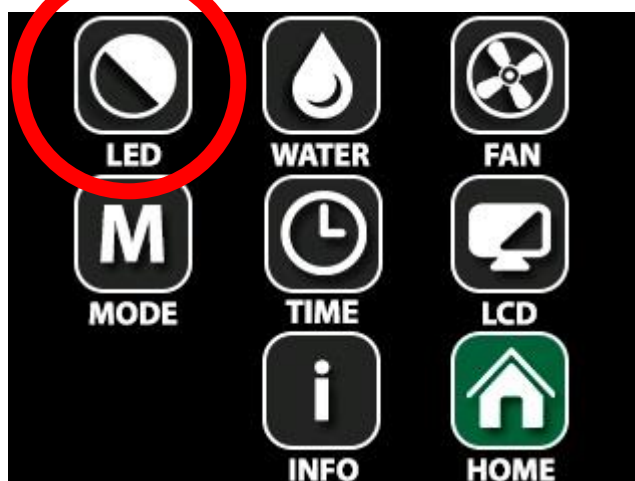




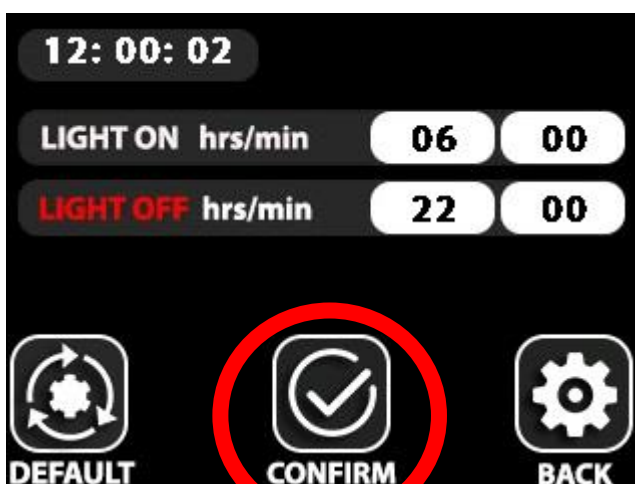
## Light setting



Go to SET

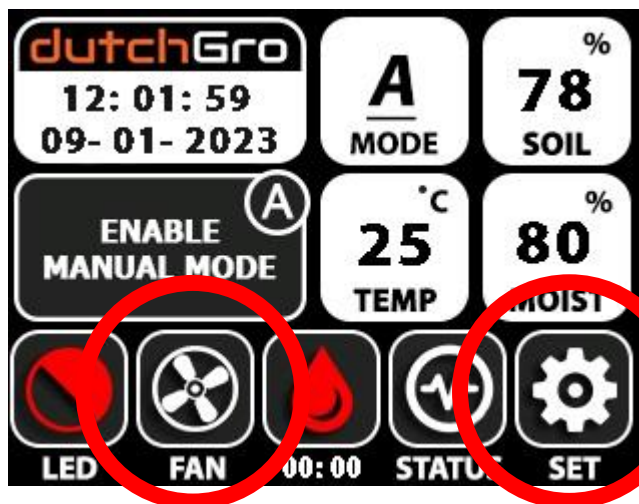


Choose option LED



Configure light setting on/ off

## Fan setting manual mode



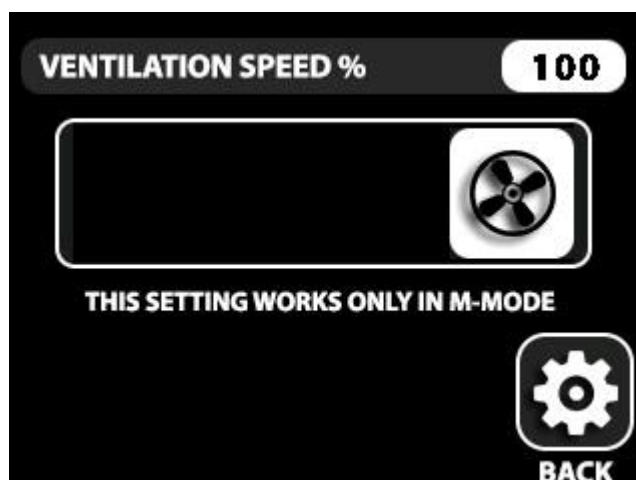
\*In auto mode, fan speed adjusts itself automatically. In auto mode the fan cannot be controlled, icon is blocked.

\*Fan speed in auto mode:  
Below 15 degrees: stop  
Above 15 degrees: 40% speed  
Above 27 degrees: 80% speed

Go to SET



Choose FAN

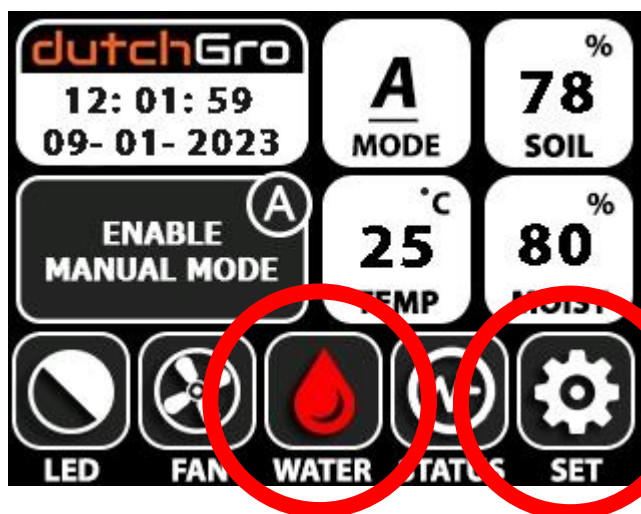


Change FAN speed with slider

\*Only in Manual mode you can change the fan setting/ speed.

\*Fan will not run automatically when the Temp & Hum sensor is not connected in because there are no readings/ value

## Pump, water setting



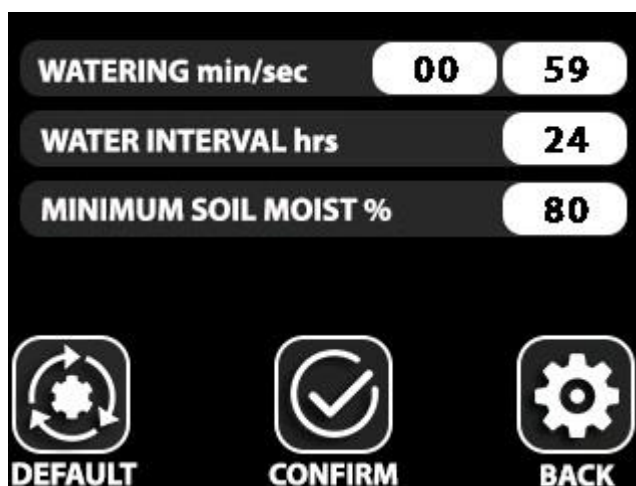
\*In auto mode the water activate automatically according to user setting.



Water countdown indicator shows on home screen when pump is activated.



\*Set your own water configuration under Home screen/ SET and choose menu WATER



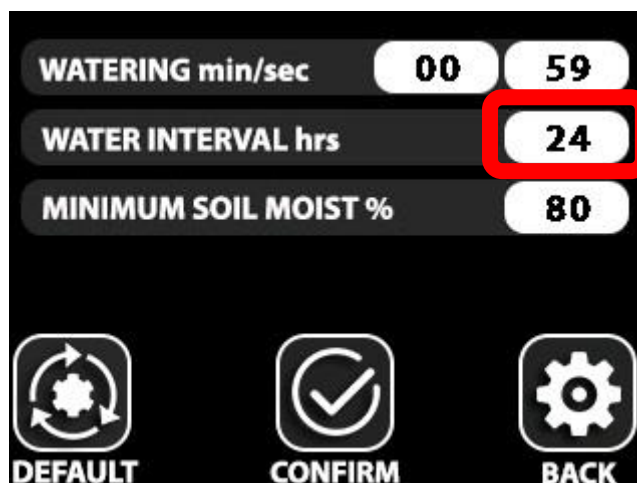
Set watering in min and sec

Set interval in hours, to prevent restarting water (safety feature) outside the interval hours

Set minimum soil moisture.

\*If probe(s) goes below 80% set value, it will give in this situation 0.59 sec water

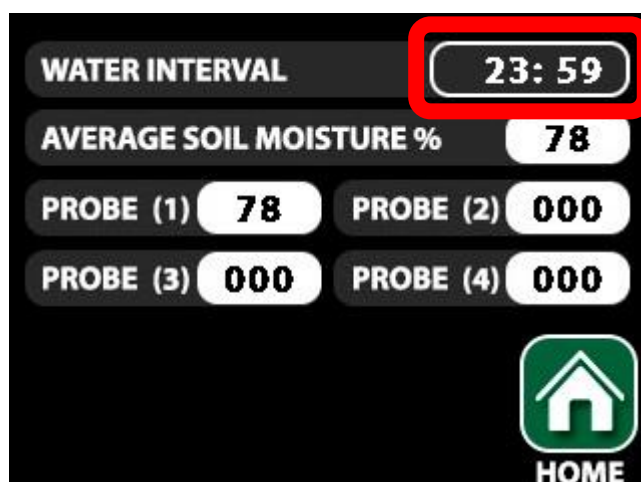
## Water interval



Generally, the interval prevents the pump to re-start again for any reason. It's a safety feature; it can be turned off by 0 or be set max at 165 hours.



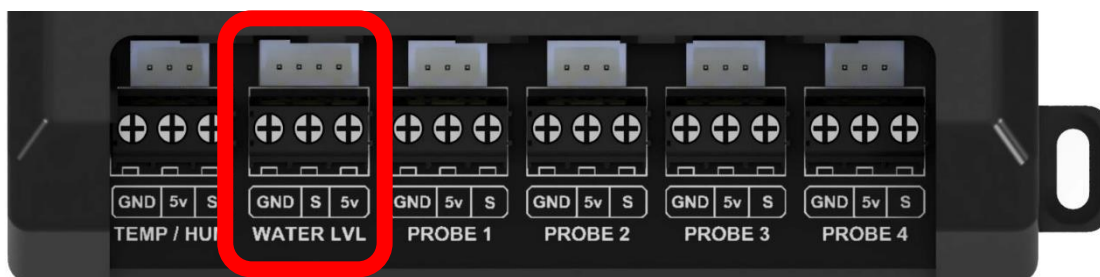
Go to STATUS



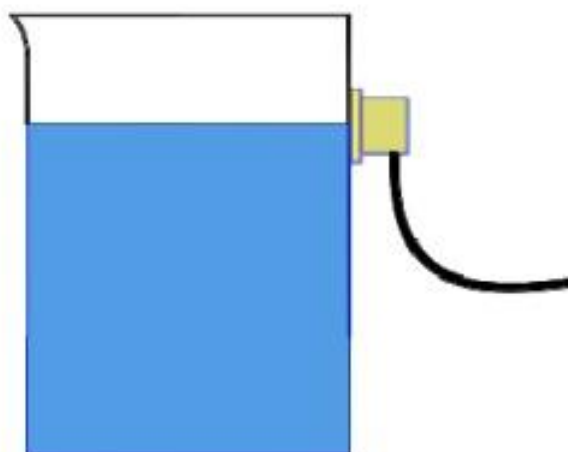
The water interval countdown counter can be monitored under menu status



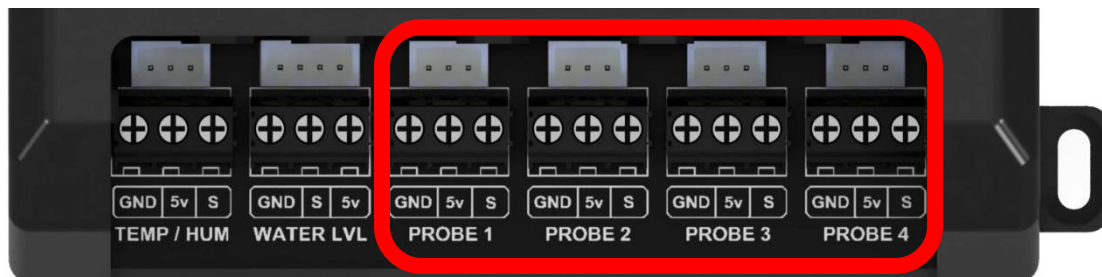
## Water level, Signs



\*If the water level sensor is not connected it shows every 72 hours a warning sign as reminder that water LVL Is not connected, or its not working, if you don't use the sensor you can dismiss the warning.



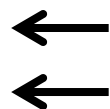
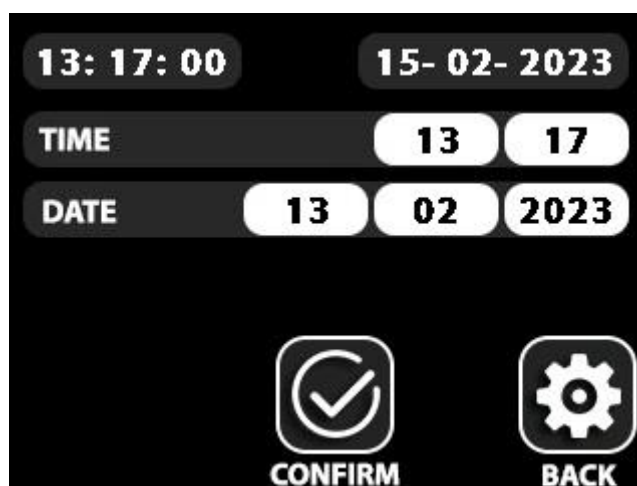
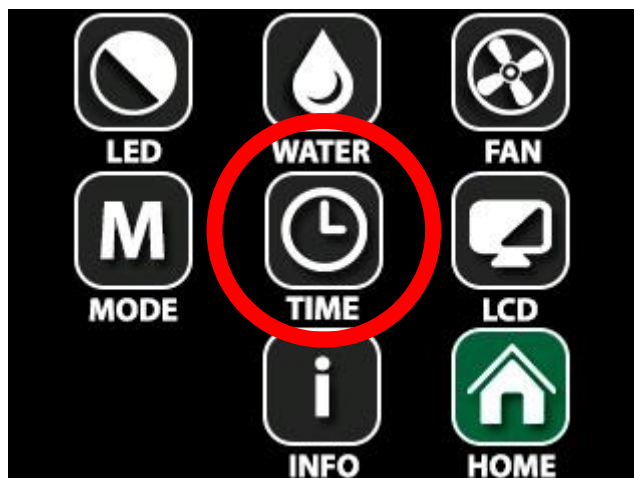
## Probes, signs



\*If probes (s) are not connected it shows every 72 hours a warning sign, a reminder that there is no probe connected, if you don't use any probes you can dismiss the warning.



## Date and time

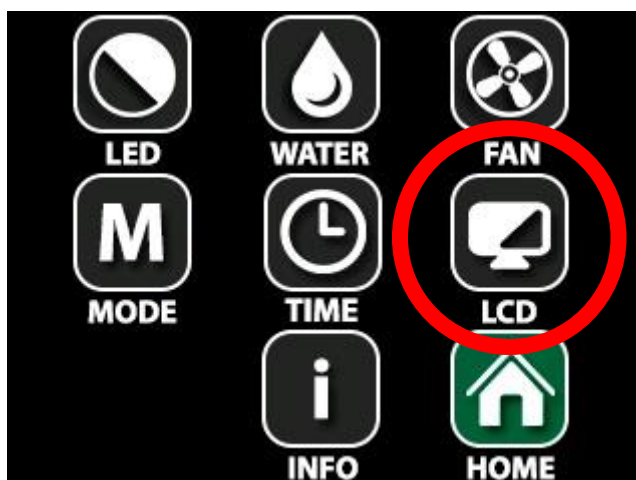


Set date and time

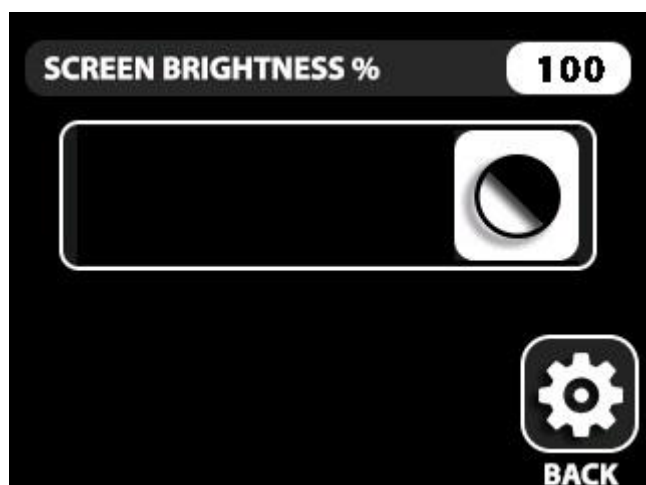


\*Time and date shows on the home screen and will be set through the whole system, time and date will be saved by an internal battery.

## Screen brightness



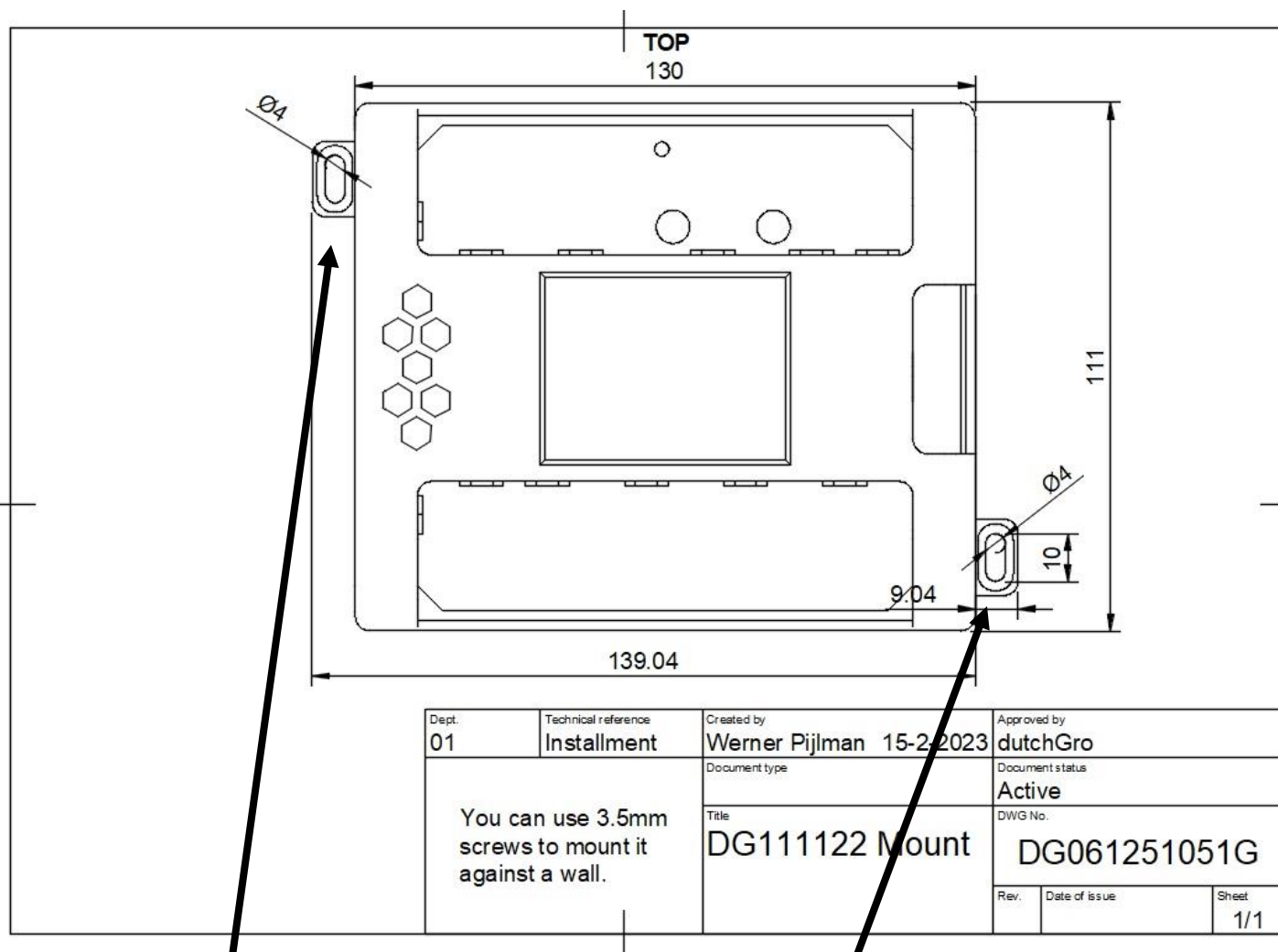
Go to Home/SET and  
choose LCD in the  
menu



Use the slider to set the  
desired screen  
brightness



## Dimensions



You can mount the unit against a wall, use 3,5mm screws

## Trouble shooting

Contact our support on the website [www.dutchgro.com](http://www.dutchgro.com)

We will assist you within 24 hours

### Light

Part	Problem	Check	Answer	Solution
Light	Doesn't switch on.	Check the LED indicator on the board, does it work?	No, if yes check below	Contact support
		Does the Relays makes a clicking sound?	No, if yes check below	Contact support
		Check if the wall plug has power?	Not sure	Change power source
		Check if manual mode and auto mode setting are correct?	Not sure	Change settings
		Check if the light cable is damaged in any way	maybe	Change cable or contact support

### Pump

Part	Problem	Check	Answer	Solution
Pump	Won't activate.	Check the LED indicator on the board, does it work?	No, if yes check below	Contact support
		Does the Relays makes a clicking sound?	No, if yes check below	Contact support
		Check if manual mode and auto mode settings are correct?	Not sure	Change settings
		Is it a 12v pump?	No	Change it to a 12v model
		Pump is not stable		Reconnect the wires

### Fan

Part	Problem	Check	Answer	Solution
FAN	Doesn't switch on	Check the LED indicator on the board, does it work?	No, if yes check below	Contact support
		Does the Relays makes a clicking sound?	No, if yes check below	Contact support
		Check if manual mode and auto mode settings are correct?	Not sure	Change settings
		Did you plug in temp & Hum sensor?	No	Plug in the temp sensor
FAN	Run's only one speed, cannot be controlled	You have a PWM fan, 4 wires?	No	Change the fan for a PWM fan 4 wires
		Make sure to connect the control ( mostly blue) wire correctly	Not sure	Check the diagram page 6
		You connected the wrong wires, possibly shortcut.	Yes	Contact support

### Probe

Part	Problem	Check	Answer	Solution
Probe	No readings under home screen and status.	Connect the wires correctly?	Not sure, if yes check below	Check diagram page 13
		Using the right probe?	Not sure	Check page 13
Probe	Incorrect reading	How far is the probe in to the soil?	not sure	Push the probe deeper in the ground
Probe	Probe gives warning "no probe detected" but probe(s) are connected.	Is the Moisture far over 100%?	yes	The Probes are too much submerged

### Waterlevel sensor

Part	Problem	Check	Answer	Solution
Water level sensor	No reading	Connect the wires correctly?	Not sure	Check the diagram page 12
		Using the right sensor?	Not sure	Check page 12
Water level sensor	Incorrect reading	Did you adjust the sensor?	No	Check page 12 how to calibrate
Water level sensor	Not working properly	Did it become wet?	yes	Contact support