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Mobile App info

Getting started

About service

GrowDirector lets you automate and remotely control all your growing activities. The features include:

- Get real-time information from the Sensors in your greenhouse.
- Stay up to date with push notifications.
- Maintain full automation and control over the growing process by setting and editing rules remotely.

System requirements

GrowDirector is available on mobile devices and via web browsers. The System Requirements are as follows:

- Android: Android 8 and later.
- iOS: iOS 13 and later.
- Browser: Apple Safari, Google Chrome, and Mozilla Firefox.

Downloading the GrowDirector App

• For Android 8 and later mobile devices, download the GrowDirector App from the Google Play Store.

- Users can download App from the link: <u>GrowDirector 3 PRO Apps on Google Play</u>
- For iOS 13 and later mobile devices, download the GrowDirector App from the App Store.

- Users can download App from the link: <u>GrowDirector 3 PRO</u>
- You can use a Web Application and access the system through your PC as well. To do so, first, a Mobile App must be installed, and second, Modules, Devices and Sensors must be connected.
- The Web Application is at the link: <u>GrowDirector 3 PRO</u>

Creating a new account

To create a new GrowDirector account, please, follow these steps:

- 1. Install the GrowDirector App on your mobile device.
 - 2. Open the App. Tap the Create account button, the following screen appears:



Ema	ail
Pas	sword
	0
8 or	more characters including uppercase and symbols
	Create account
	By clicking Create account, you agree to our User Agreement and Privacy Policy

- 3. In the **Email** field, enter your email address.
- 4. In the **Password** field, enter your password. Your password should be a combination of 8 or more characters, including letters with at least one uppercase, numbers and symbols.
- 5. Tap the **Create account** button to complete your registration.
- 6. Now you have your account!

Logging In

To log in using an existing GrowDirector account, please, follow these steps:

1. Open the App. The following screen appears:

MAD	Y	Jan	20		
Email	Weld Enter yo	COM	e ba	ck!	
Passwo	ord				0
		Log	in		
Create	account		For	got pass	word?

- 2. In the **Email** field, enter the email address you used to create your account.
- 3. In the **Password** field, enter the password you used to create your account.
- 4. Tap the **Log in** button.

5. When you log in for the first time, you are prompted to set your preferred language and units of measurements:

_			
14:00	竇 證 ፼ ⊒ 79% ∎	14:03	■ 淀 閉 = 79% ■
← Language		← Units	
English	۲	Temperature	
עברית	0	Celsius	۲
Français	0	Fahrenheit	0
		Time format	
		24 hours	۲
		12 hours	0
Apply			
	<	111	0 <

Recovering password

To recover your password, please, follow these steps:

1. Tap the **Forgot password?** option at the bottom of the Log in screen:



Welcome back!

Enter your er	nail and	password
---------------	----------	----------

Email	
Password	•
Lo	og in
Create account	Forgot password?

2. The following screen appears:

←	
Pass	word recovery
Enter the em	ail specified during registration
Email	
	Continue
	Log in
111	\cap

3. In the **Email** field, enter the email address you used to create your account and tap the **Continue** button.

4. A six-digit code will be sent to your registered email ID. If you do not receive the code on time (you will have 30 minutes to enter the code), tap the **Send New Code** option to generate a new code. After entering the six-digit code, you will be redirected to the next screen where you can securely enter a new password:

14:08 M 🖻	纖 證 閉 대 78% 📾
\leftarrow	
Passwo	ord recovery
Er	nter code sent to
yu	r***@gmail.com
	$\bigcirc \bigcirc $
S	iend New Code
	25 sec.
111	

5. Enter your new password 2 times in the **New password** field and the **Confirm new password** field. Your password should be a combination of 8 or more characters, including letters with at least one uppercase, numbers and symbols.

Tap the Set password button:



Renaming

In Mobile App you users can rename modules, sensors and devices.

Module

To rename a Module, please, follow these steps:

1. Tap the **Module** that you want to rename. The following screen appears:



2. Tap the **Manage** and then **Edit** buttons on the top-right corner of the screen. The following screen appears:



3. Enter the new name of the Module in the **Module name** field and tap the **Rename** button.



4. If you do not want to proceed with renaming, tap the **Cancel** button.

Device

To rename a Device that you have added, please, follow these steps:

1. Tap on **Device name** on the Devices screen. Tap the **Manage** and **Edit** buttons on the top-right corner of the screen. The following screen appears:

Cosing pump 93:BE.pm.00	Cosing pump 93:BE.pm.00
Device idle	Device idle Manu Manu Delete device
Automation	Automation :
Sensor $\textcircled{3}^{H}$ sensor_84:F7:03:FE:1B:30.02 Decrease 7.0 pH \rightarrow 6.6 pH	Sensor
Mixing time 1 min Dosing time 20 sec	Mixing time 1 min Dosing time 20 sec

2. Enter the new name in the **Device name** field and tap the **Rename** button.

← Pump2	00
Water Pump Pump2	
Rename device	
Device name	20 characters
Pump3	
Cancel	Rename
Run device if:	
value on & sensor_1237ba4cb-1 sensor	d2d-4b3c-ac30-cca2c544bae

Sensor

To rename a Sensor, please, follow these steps:

1. Tap the **Sensor** that you want to rename. The following screen appears:



2. Tap the **Manage** button on the top-right corner of the screen. The following screen appears:



3. Tap the **Edit** button "Rename sensor". The following screen appears:



4. Enter the new name of the Sensor in the **Sensor name** field and tap the **Rename** button.



5. If you do not want to proceed with renaming, tap the **Cancel** button.

K Contraction Level 1	h :
Current value	
14 Jul 00:02	14 Jul - 15 Jul 10 7D
61	60
Rename senso	r i i
Sensor name Sensor	100 characters
Cancel	Rename
46 46 42 42 10 Jul	MW ¹ 45 15 Jul
Connected to:	→ pr Hydro

Managing Settings

Settings

GrowDirector lets you manage your common account settings. To access the settings page, tap the **Settings** button on the right corner of the TabBar. The following **Settings** screen appears:

S	e	t	t	i	r	1	g	S	



Tap the options on the **Settings** page to manage the respective settings.

Settings is a menu item that consists of configurable functions and personal user info. By clicking on settings on menu system will open the main settings page. There are several items in the settings list:

- 1. Notification center in app notifications
- 2. Account account settings and details
- 3. Language app language selection
- 4. Units selection of measurement types in app
- 5. Help manual for using application
- 6. Contact support contact support form to ask any question
- 7. Log out log out from existing account

Account

By click on Account system will open list of account settings:

- 1. Change email
- 2. Change password
- 3. Use Face ID to Log In (iOS), Android -?
- 4. Delete Account

Delete account-

This section is used for permanent removing a client's account and deleting all his\her information. This is an irreversible action! Once the client clicks on the "Delete Account" button, an automated pop-up will comes out to take his attention to his action. If the client choose to proceed the procedure and click the green "Continue" button, he\her will be transferred to a new window. A code will be sent to clients email address to fill in that window. After filling the code, the account will be permanently removed.



0	

Managing Notifications

To view notifications, please, follow these steps:

1. Tap the **Notification Center** option on the **Settings** screen. The following screen appears:



Your mobile device must have open notification access to receive notifications from GrowDirector. If you are experiencing issues with receiving notifications, we advise to check:

- Make sure your mobile device is connected to the Internet.
- Try a different Internet connection. For example, if you are connected to Wi-Fi, try mobile data, and vice versa.
- Check your mobile device's settings.
- Restart your mobile device.

Notification Filters

To see Notification Filters tap the **Filter** button on the top-right corner of the screen, then you can choose needed filter. The following screen appears:

< No	otifications	(V) @
All messages 🗸	All period	
Critical Mod Module 'hydro te: 7 Jul 21:17	dule Offline st aar' has been offl	ine for a critic
Critical Mod Module 'hydro tes 7 Jul 01:22	dule Offline st aar' has been offl	ine for a critic
Critical Mod Module 'hydro tes 30 May 18:05	dule Offline st dev' has been off	line for a critic
Critical Mod Module 'hydro te: 30 May 03:15	dule Offline st dev' has been off	• line for a critic
Critical Mod Module 'hydro tes 29 May 19:10	<mark>dule Offline</mark> st dev' has been off	• line for a critic
Critical Mod Module 'Dim test	<mark>dule Offline</mark> 1' has been offline f	or a critical du

Notification Preferences

To see and set Notification Preferences Tap the **Setting** button on the top-right corner of the screen, then you can able to get 2 types of notification: push or email (or both of them) and from choosen module or from all modules. The following screens appears:

< Notifications V ()	14:24 ছ য়ে 🕮 এ 76% ∎ ← Notification Preferences
An messages An period An	Select the notification delivery method (push or email) and choose the devices, sensors, and modules to which notifications will be applied.
Critical Module Offline Module 'hydro test aar' has been offline for a critic 7 Jul 01:22	 ⇔ Device switched Get notified when the device chang > × Push × Email All devices
Critical Module Offline Module 'hydro test dev' has been offline for a critic 30 May 18:05	Sensor disconnected Receive alerts when a sensor disco × Push × Email
Critical Module Offline Module 'hydro test dev' has been offline for a critic May 03:15	Sensor connection restored Get notified when a sensor connect × Push × Email All sensors
Critical Module Offline Module 'hydro test dev' has been offline for a critic 29 May 19:10	Alerts when a module goes offline. > × Push × Email All modules
Critical Module Offline Module 'Dim test1' has been offline for a critical du	III O <

Changing registered Email

This function has not been realized yet!

To change your registered email, please, follow these steps:

1. Tap the **Account** option on the **Settings** screen. The following screen appears:



2. Tap the **Email** option. Then you will need to enter new email and press "continue". The following screen appears:

)



3. On this mail you will get 6-numbers code to enter here. After entering the code and pressing "Ok" the system will send other 6-numbers code to the old email which you have to enter in the App too.





3. After that your email will be changed.

Changing password

To change your password, please, follow these steps:

- 1. Tap the **Account** option on the **Settings** screen.
- 2. Tap the **Password** option. The following screen appears:

	0
Confirm new password	
t or more charachters including uppercase and ymbols	
	0
	0
lew password	
	0

< Change Password

- 3. Enter your old password and new password in the respective fields.
- 4. Tap the **Update password** button.

Changing language

To change your language, please, follow these steps:

1. Tap the Language option on the Settings screen. The following screen appears:

14:00	響 證 璽 ⊫ 79% ≘
← Language	
English	۲
עברית	0
Français	0



2. Select your desired language.

Changing Units of Measurement

To change your units of measurement, please, follow these steps:

1. Tap the **Units** option on the **Settings** screen. The following screen appears:





- 2. Select your desired units of measurement for the following:
- Temperature,

• Time format.

Delete account

This section allows users to permanently delete their account and all of their associated information.

This is an irreversible action, so please make sure you are sure before proceeding.

To delete your account, follow these steps:

1. Click the Delete Account button.

2. A pop-up window will appear, warning you that this is an irreversible action. Click Continue if you are sure you want to delete your account.



3. You will be asked to enter a code that will be sent to your email address. Enter the code and click Submit.

4. Your account will be deleted.





Here are some additional things to keep in mind:

- Once your account is deleted, you will no longer be able to access it.
- All of your data, including your profile, posts, messages, and other information, will be

permanently deleted.

• There is no way to recover a deleted account.

If you are having any problems deleting your account, please contact customer support.

Log out

User can log out from a profile in case he has already logged in. By click on "Log out" sub menu item system will show popup:

- 1. Popup name: "Are you sure want to log out from existing account?"
- 2. "Yes" button by click
- Closes popup
- Logs out from existing account
- System opens "Log in" screen
- 3. "Close" button by click
- Closes popup

Settings



Viewing help content

Route

You can view FAQs and the manual for the help content. To view them, please, follow

these steps:

1. Tap the **Help** option on the **Settings** screen, also you have an option to turn on/off the help button. The following screen appears:



• Tap the **FAQ** option. The following screen appears where you can get answers to the frequently asked questions:



• Tap the **Manual** option. The following screen appears where you can read instructions on performing various operations:





Manual

Page title: Manual (static text). Below the page title there is a search field that allows you to search any text in the manual guide. Search field criteria:

- Partly match search
- System starts auto search after user enters at least 3 characters and wait 2 seconds
- Search result should show chapter name in which word was found and text (see design)
- System shows 5 first search results that are sorted by page from 1 to infinite. After user scroll

search result system should show 5 more search results.

- By click on search result system opens correspondent page in manual.
- After search started, system should hide chapter name below the search filed unless search field will be empty again
- "Back" button on search screen allows user by click opens a Help main page.
- In case user searched anything and clink on search result, then goes back to the list by clicking
 "Back" button, system should show previous search result with last search work in the field.
 Below search field (in case it's empty) system shows list of chapters from manual. By click on any chapter
 system opens the manual on the correspondent page. "Back" button allows the user by click open
 manual page with the search field again.

Release notes

To see Release Notes, please, follow these steps:

1. Tap the **Help** option on the **Settings** screen. The following screen appears:

Settings



2. Tap the **Release notes** button. The following screen appears:

Help
Hello!
How can we help you?

Image: state of the state of th

Start onboarding tutorial

>

2

3. You can see **Release notes** on screen:

<	Release notes
Version: Remote	1.7.9 (Jun 10 2024) Management
Remote	Restart: Reboot your module from the app.
• Find Mo LEDs.	odule: Locate your module by flashing all
· Localiza	ation: App now supports Hebrew and French.
Device M	lonitoring
· Operati	on History: Track offline and online states.
· Activity	History: New module activity logs.
User Exp	erience
· Improv redesign	ed UI: Enhanced visual components and ned rule details.
· New Ru	le Process: Easier to add and edit rules.
· Device	Hints: Helpful tips added.
System E	Inhancements
New Se sensors	nsor Status: "Disconnect" status for digital
• Offline internet	Rules: Improved performance without
Better \ stronge	WiFi Connection: Auto-connects to the st router.
· File Sys restorat	tem Management: Automatic creation and ion.
General	Improvements
· Minor F	ixes: Over 30 bug fixes and enhancements.

Enjoy these exciting new updates!

Start Onboarding Tutorial

1. Tap the **Help** option on the **Settings** screen. The following screen appears:

Settings



2. Tap the **Start onboarding tutorial** button. The following screen appears:

<	Help	
	Hello! How can we help y	ou?
3	FAQ	>
=	Manual	>
÷	Release notes	>
Show	the help button	
	Prese to see what on the sco	reen
0	Start onboarding tutorial	>

3. You can see **Onboarding tutorials** on screen:



Contacting Support

If something is wrong with the module, sensor or mobile app work (using, calibration, adding, renaming, connecting, viewing, deleting, switching On and Off or managing), users can write their problem to support to get help.

To contact support for help, please, follow these steps:

1. Tap the **Contact Support** option on the **Settings** screen. The following screen appears:

15:10	🗙 💥 💯 .al 71% 🛢	15:11 🖪	驚陸閉』 71%∎
← Contact Support	:	← Contact Su	oport
Email		Email	
product@test.com		product@test.co	om
Choose category		Choose category	
	~		~
Issue Description	250 characters	Security Reques	t
		Technical Reque	st
		Other	
Send Reque	st	Send R	equest
		•	

 \bigcirc

2. Enter your email, choose a category, and enter the issue description.

3. Tap the **Send Request** button.

For all the questions related to the System's operation, you can also contact us through <u>contact@growdirector.com</u> or WhatsApp +972556875750.

Modules

Usage

Connecting

When user opens the GrowDirector App for the very first time, there are no Modules in the System yet. Therefore, user must first add (connect) the first Module to proceed.

Note: Ensure your Wi-Fi is switched on. Make sure your router is compatible with the 2.4 GHz frequency, as Modules require this frequency for connection:

• Check the router's label: Look for a label or sticker on your router that lists the supported frequencies. Most routers will have either "2.4 GHz" or "Dual-Band" (which means it supports both 2.4 GHz and 5 GHz) mentioned on the label.

• Router's user manual: Refer to the user manual or product documentation that came with your router. Look for information on supported frequencies. If you don't have the physical copy, you can search online for your router's make and model to find a digital version of the manual. • Router's web interface: Access your router's web interface by typing the router's IP address into a web browser. The IP address is typically found on the router's label or in the user manual. It often looks like "192.168.1.1" or "192.168.0.1". Once you've logged in to the web interface, navigate to the wireless settings and check if the 2.4 GHz frequency band is available.

• Manufacturer's website: Visit the manufacturer's website and search for your router's model number. Check the product specifications for information about supported frequency bands.

• If your router supports the 2.4 GHz frequency, you should be able to connect devices that require this frequency for operation.

To connect a Module, please, follow these steps:

- 1. Ensure your phone is connected to the same Wi-Fi network as the one you plan to use for the Module.
- 2. Stay within 10 meters (30 feet) from the Module during setup.
- 3. Connect the Module to a power source, then locate the 'sync' button on its back panel. Press and hold the button for 10 seconds.
- 4. Wait for a blinking green light.
- 5. In the App, tap on the Module tab, and then on the Plus button (icon) on the top-right corner of the screen.



6. The App should automatically detect your Wi-Fi network. Verify that it matches the network you want to connect the Module to.

Modules

Settings

7. When prompted, input your Wi-Fi network password and tap Save to proceed.

Devices

Climate

Climate



8. Access your phone's Wi-Fi settings through the settings menu, under 'Connections' or a similar category.

12:10							
Tue, Apr 4 🌣							
Device control Media output							
Harry China China U							
il.query@dhl.com dima@growdirect 1200 V New billing account added to Account							
Screenshot saved 12:10 Tap here to see your screensh.							
Sound Profile: Normal Tap here to change it							
Notification settings Clear							
Ŧ							
🚍 🔅 🕫 # <							

 Browse the list of available Wi-Fi networks tap and select your module's name (e.g., HydroDirector, SensorDirector).



10. Only if it's your first connection to this module.: You'll be prompted to enter a password for your module. Use the default password (123456789) for the first-time setup and tap 'Connect'.

<pre> grow_director_84:F7:03:FE:</pre>									
Password 123456789								۲	
Auto reconnect									С
~ View more									
Connect									
1	2	3	4	5	6	7	8	9	0
		q	٦	א	ט	I.			פ
ש	۲	λ	С	ע		n	ל	٦	٩
1	σ	Г	n	C	מ	Я	л	٢	(X)
?123 ,					עברית				~

11. If this is NOT your first connection to THIS module, please skip to step 13.

12. If a message appears stating 'Internet may not be available', select the 'Always connect' option to bypass this warning.



13. The App will begin connecting the module to your Wi-Fi network. Wait for up to 2 minutes, for the 'Module successfully connected!' screen to appear, signaling that the process is complete.



15:36 🖪	8	22 🖘 躍 🗉 70% 🛍				
÷ ,	Add module					
Select module						
	SensorDirector SensorDirector861	۲				
	Start					
	Start					
111	0 <					

14. Tap the Connect another one button to connect one more Module.

15. Tap the Finish button to complete the process. The Module is added to the Modules screen, and marked with a green sign New:



• Resetting the module to factory settings

It is necessary to turn off the power supply of the module, hold down the function button and supply power to the module. Continue to hold down the button for 10-20 seconds. The module will switch to factory settings mode and will be available for adding it to the system. One LED will flash red and yellow every second. • Switching the module to the add mode

It is necessary to hold down the function button and hold it down for 10-20 seconds. The module will switch to the add mode. One LED will flash green every second.

• Switching the module to testing mode

In operating mode (when power is supplied to the module), hold down the function button, turn off the power and apply it again. Hold the button down for 10-20 seconds. After switching the module to Test mode, none of the LEDs will light up. To remove the module from the test mode, it is necessary to reboot the module - turn off and turn on the power, after which the module will switch to factory settings mode.

Reconnecting module with saving rules

To reconnect module with and save devices rules users can follow next steps:

- 1. Press power button on the module until the LED indicator stops glowing and then starts blinking green.
- 2. Add this module again to the GrowDirector App without deleting.

After this steps your module will be readded with saving rules.

Deleting

In order to delete a Module, you need to delete Devices and/or Sensors connected to a Module first. If there are Rules associated with Devices, you need to delete the Rules as well. This is made in order not to delete a Module occasionally. To delete a Module, please, follow these steps:

1. Tap the **Module** that you want to delete. The following screen appears:



 Tap the Manage and then Delete button on the top-right corner of the screen. The following screen appears:



- 5. Tap the **Delete** button.
- 6. If you do not want to proceed with deleting, tap the **Cancel** button.

Module update

Terms:

- 1. Mobile app is used to module update.
- 2. Must be new mobile app version.
- 3. Connecting to same Wi-Fi network (app and modules).

Update process:

1. When user is entering to the app and when modules need update, users will see notification on main screen.


2. On page "Modules" users can see the module that need to update. For updating user needs to press tile where he sees an "update" notification.



3. Then user needs to press "Module's info" button on the module screen.

< Sen	ns test1 IsorDirector	:
•		
	• •	
	Modul's info (?)	
Connecte	d sensors	
∹Ę	LUX sensor_84:F7:03:FE:88:30.03.01 Pin 1	>
, އ	PAR sensor_84:F7:03:FE:88:30.02.01 Pin 2	>
Sp.	Air humidity sensor_84:F7:03:FE:88:30.01.02 Pin 3	>
Hz	Air temperature lux overheating Pin 3	>

4. Then user must to press an "Update" button.

Open image-20240909-101453.png

^{12:55} ≌ জ ল ← Modules info	.al 86%∎				
module_58:CF:79:9E:5F:96					
Firmware: 1.6.3 New version available	odate				
Type: DryContactDirector					
Serial number: 58:CF:79:9E:5F:96	Ø				
🤶 Grow	(i)				
Find module	*				
Activity history	Ð				
III O (<				

5. Then press "Start updating" button.



 After updating the module will be automatically rebooted. Then the user will see the module (in "Modules info") updated to latest firmware.

Each module occasionally needs to be updated. System tracks the current module workload to find the perfect time to make an auto update. Rules to check if auto update possible:

- 1. System should store time when auto update was initiated.
- 2. System should check all rules that are assigned to devices which are connected to the module and find a timeline of at least 1h to make an auto update. In case devices have rules by sensor data, then check by previous days or by current sensor data if no action with devices needed at least for 1h.
- 3. System will try to find 1h time frame for 24 h. Only in case there is no free 1h time frame, then system, send notification about manual module update. See details below.
- 4. Only in the case described above the system should auto update the module. And show successful notification. Description of notification are in Notifications part of documentation:
- 5. Module was successfully updated
- 6. Module could not update automatically
- 7. Module firmware update failed
- While user click on Manual update button, then system shows screen with progress bar:
 "Module firmware update is in process..."
- 9. "Back" button by click stops firmware update and shows >List of notification< page
- 10. After successful firmware update close progress screen and send successful firmware update notification described in 4th item list.

11. In case system could not update the module manually for 2 times (2 error messages sent), then system does not send notification about the failed update. System will try to make module firmware update later (up to developers' flow)

Module LED indication

Possible colors: GREEN, YELLOW, RED.

Modules led indications

Each module has an indication led light. There several indication types that shows different states of modules:

*Statements above belong to all sensors that has led light indicator. Behavior should be the same for all.

State	Indication
First module connection	One Yellow led fastly blinking
Connection to Wi-Fi	One Yellow LED light permanently
Module is connected and work (idle)	All Green LEDs blinking slowly
When one of devices of module is	One of the green LEDs will light permanently and other LEDs
working	will blinking green slowly
When the module is offline	All of the LEDs light RED permanently
"Find module" mode	All of the LEDs fastly blinking red

Modules info

Checking modules info

1. For checking modules info tap the "Modules" button on the main screen.



2. Then on the modules screen you will see your modules list, choose one of your modules and tap on it.



3. Next in the opened screen you need to tap on the "Modul's info" button.



- 4. Now you can see your module's info:
- 5. Module's name
- 6. Firmware version
- 7. Module`s type
- 8. Serial number
- 9. Network
- 10. Find module button
- 11. Activity history

K Modules info	
Hydro test aar 1	
Firmware: 1.7.21	
Type: HydroDirector	
Serial number: 84:F7:03:FD:93:BE	G
Keenetic-3179	(i)
Find module	÷¢:-
Activity history	Ð

Module diagnostics

1. To see module diagnostics tap the "Modules" button on the main screen.



2. Then on the modules screen you will see your modules list, choose one of your modules and tap on it.



3. Next in the opened screen you need to tap on the "Modul's info" button.



4. On the screen "Module's info" tap on the button with the name of your network.



- 5. On the "Module diagnostic" screen you can choose needed date and see next parameters:
- 6. RSSI -
- 7. API Fails -
- 8. API Fail Ratio -
- 9. MQTT Fails -

<	Module diagnostics Hydro test aar 1
29	9 Jul (29 Jul - 5 Aug) 10 70
-30 -55 -80	Offline 29 Jul 31 Jul 2 Aug 4 Aug
API 138 1 0	Fails 7.00
	Fail Ratio
MQ 32 •	0.00

Find Module

1. For finding module tap the "Modules" button on the main screen.



2. Then on the modules screen you will see your modules list, choose one of your modules and tap on it.



3. Next in the opened screen you need to tap on the "Modul's info" button.



4. Then you need to tap the "Find module" button.



5. The LED indicators on your module will blink until the scale from the bottom on the screen is failed. You can tap on the "Stop" button to end LED indicators blinking.



Activity History

1. To see activity history tap the "Modules" button on the main screen.



2. Then on the modules screen you will see your modules list, choose one of your modules and tap on it.



3. Next in the opened screen you need to tap on the "Modul's info" button.



4. Then on the "Module's info" screen you need to tap the "Activity history" button.

K Modules info	
Hydro test aar 1	
Firmware: 1.7.21	
Type: HydroDirector	
Serial number: 84:F7:03:FD:93:BE	G
🗢 Keenetic-3179	(
Find module	÷.
Activity history	Ø

5. On the opened screen you can choose the needed date and see your module activity history.



HydroDirector Module



\bigcap	HydroD	irector Module	
Power On/Off DO & ORP button	PH O	EC & Temp	Adapter Connector

About the product

HydroDirector is an advanced automation and data management solution that has been

designed to optimize hydroponic systems. With HydroDirector, you can collect data from pH, EC and Water Temperature and have complete control over your hydroponic system, and set up alerts to notify you when certain conditions are met, or something goes wrong. This enables you to adjust your system accordingly to achieve optimal growing conditions for your plants.

Available: Yes.

Functional

- 1. Control up to 48,000 dosing pumps in one system by adding extra Modules.
- 2. Single Module can handle 3 pumps and 3 hydroponic Sensors.
- 3. pH, EC, Water Temperature levels control.
- 4. Module has 3 connectors for sensors: 2 round BNC connectors and 1 square RJ12 connector.
- 5. Machine Learning. (?) A machine learningsystem that learns the plants of a grower and can predict future changes in the environment and correct them before they occur.
- 6. Predictions (?)
- 7. Customizable Alerts: Set notifications for critical parameter changes, ensuring prompt action when needed to maintain ideal growing conditions.
- 8. Remote Monitor & Control (?)
- 9. Data Logging & Analysis (?)

Delivery set

- 1. A module;
- 2. Metal holder;
- 3. Connector 1,5 A (needs power adapter).

Installation

Caution

Module are not water-resistant. Use protective covers for added safety. Ensure compatibility with your electrical system (220V or 110V).

Choose the right location for each module:

Mount module using the included metal bracket and power supply. Near your fertigation room or water reservoir. Ensure 5mm outer diameter pipes are available for dosing pumps, with a maximum distance of 9 feet (2.7 meters) to fertigation tanks.

Connect sensors first, then power the module.

SensorDirector Module



About the product

SensorDirector is an advanced automation and data management solution allowing to connect up IoT Sensors to obtain limitless plant data and valuable insights. With SensorDirector, you can collect data from Air Temperature, Humidity and VPD, Soil Moisture, CO2, PAR, LUX Sensors. With SensorDirector, can be gained unprecedented visibility into the health and performance of plants. This allows users to take proactive measures to prevent issues and ensure optimal plant growth.

Available: Yes

Functional

- 1. Receiving and analyzing data from up to 64,000 Sensors by adding expandable modules.
- 2. Single Module can handle 4 Sensors.
- Collecting data from Air Temperature, Humidity and VPD, Soil Moisture, CO2, PAR, LUX, pH Sensors.
- 4. Module has 4 square RJ12 connectors for sensors.
- 5. Machine Learning. (?) A machine learningsystem that learns the plants of a grower and can predict future changes in the environment and correct them before they occur.
- 6. Predictions (?)

- 7. Customizable Alerts: Set notifications for critical parameter changes, ensuring prompt action when needed to maintain ideal growing conditions.
- 8. Remote Monitor & Control (?)
- 9. Data Logging & Analysis (?)

Delivery set

- 1. A module;
- 2. Metal holder;
- 3. Connector 0,75 A (needs power adapter).

Installation

Caution

Module are not water-resistant. Use protective covers for added safety. Ensure compatibility with your electrical system (220V or 110V).

Choose the right location for each module:

Mount module using the included metal bracket and power supply. Ideally in the center of your

greenhouse for comprehensive crop-level data.

Connect sensors first, then power the module.

DryContactDirector Module



About the product

DryContactDirector is an advanced automation and data management solution that allows you to seamlessly operate up to 64,000 dry contacts without any need for manual input. DryContactDirector can automate your devices and uninterrupted functionality. With its advanced capabilities, become possible to streamline operations, improve productivity, and ultimately achieve greater success in growing business. A dry contact is a volt-free passive contact having no energy applied to its contacts internally. From the user perspective the dry contact simply operates like an ordinary switch that opens or closes the circuit. The DryContactDirector Module uses internal relays operating as fully isolated

switches allowing the user to connect them to various independent circuits. The DryContactDirector Module is a Wi-Fi wireless load management device. It switches loads on and off according to system configuration.

Available: Yes.

Functional

- 1. Controlling up to 64,000 electrical Devices in one system by adding extra Modules.
- 2. Can manage up to 48 rules for all devices.
- 3. Single Module can handle 4 dry contacts.
- 4. Automating and controlling multiple high-power or low-voltage equipment with one controller.
- It supports a wide input voltage range of up to 230V and a wide input current range of up to 10A.
- 6. Machine Learning. (?) A machine learning system that learns the plants of a grower and can predict future changes in the environment and correct them before they occur.
- 7. Predictions (?)
- 8. Customizable Alerts: Set notifications for critical parameter changes, ensuring prompt action when needed to maintain ideal growing conditions.
- 9. Remote Monitor & Control (?)
- 10. Data Logging & Analysis (?)

Delivery set

- 1. A module;
- 2. Metal holder;
- 3. Connector 0,75 A (needs power adapter).

Installation

! WARNING !

During installation, operation, testing and inspection, adherence to all the handling and safety instructions is mandatory. When used in 120Vac/60Hz or 230Vac/50Hz (Hazardous Live) circuits, the installation must be performed by authorized and certified electricians. Failure to do so may result in injury or loss of life and damage to the equipment.

• This product must be operated under the specified operating specifications, as described in the latest technical specification datasheet.

• Configure the product so that the load connected is not switched on or off more frequently than specified by the load manufacturer.

- Do not use the product if it is damaged or malfunctioning.
- Do not let the product come into contact with water or other liquids.

• This product contains no user-serviceable parts. Do not attempt to open, modify, disassemble or repair any component of the device.

• The enclosed documentation is an integral part of this product. Keep the documentation in a

convenient place for future reference and observe all instructions contained therein.

Ambient Operating Conditions

Environment	Indoor use
Temperature	0-50 C or 32-122 F
Max. rel. humidity	90%, non-condensing
Permissible installation attitude	5000 m above sea level

Installation:

1. Use the provided terminal block plug to connect the DryContact to the controlled load:



2. Use the wire fixing screws (A and B) to affix the load wires (AWG 12-26, 0.13-3.31mm2, according to current capacity required by applicable standard and application needs):



3. Insert the terminal block plug into the DryContactDirector terminal socket and tighten it using screws J and K:



4. Caution!



When the DryContactDirector is used to control equipment powered by 120Vac/60Hz or 230Vac/50Hz circuits, it must be installed in standard electrical enclosure (electrical cabinet or box) to prevent access to hazardous live exposed parts of the terminal block!

5. Caution!



Due to the fact the DryContactDirector has no internal fuse protection, when it is used in 120Vac/60Hz or 230Vac/50Hz circuits, an external 1-Pole circuit breaker rated 10A and certified in accordance with IEC 60947-2 (in US/Canada a Listed branch circuit protective circuit breaker) shall be used for overcurrent protection and mains disconnection.

Use cases:

 Example use of DryContact Director device in low-voltage low-power applications such as irrigation solenoids, pumps, sprinkler valves and similar equipment powered typically by 5/9/12/24Vdc or 12/24Vac (please refer to DryContact Director specifications for rated voltage and current values)





Although DryContact Director relays are protected by internal varistors with energy absorbing capability of up to 75 Joules and peak pulse currents of up to 4500 Amperes, it is highly recommended to use contactors when operating devices that behave as inductive loads. The examples of such loads are:

- High power solenoids/electromagnetic valves
- Electromagnets
- Electromotors
- Transformers
- Fans

To better understand this use case, the difference between relays and contactors must be emphasized. Similar to relays, contactors are electrically controlled switching devices, designed for repeatedly opening and closing a circuit. Contactors are principally designed for use in applications where a large amount of current needs to be switched. For that purpose, contactors typically offer a much wider range of safety cut-offs and protections, reflecting the fact that they are designed for higher power applications.

Next figure illustrates the use of controlling such high-power circuits in general and heavy inductive loads in particular using DryContact Director controlling the contactors switching these loads on and off.





SocketDirector Module



About the product

SocketDirector allows users to seamlessly operate up to 32,000 electrical Devices without any need for manual input. With SocketDirector in place, users can automate your Devices with uninterrupted functionality. With its advanced capabilities, users can streamline their operations and improve productivity.

Available: Yes.

Functional

- 1. Controlling up to 32,000 electrical Devices in one system by adding extra Modules.
- 2. Single Module can handle 2 sockets.
- 3. Automating and controlling multiple appliances like Irrigation and Dosing Pumps, Fans, LED lights, Chillers and Heaters, and any electrical equipment with one controller.
- 4. Machine Learning. (?) A machine learningsystem that learns the plants of a grower and can predict future changes in the environment and correct them before they occur.
- 5. Predictions (?)
- 6. Customizable Alerts: Set notifications for critical parameter changes, ensuring prompt action when needed to maintain ideal growing conditions.
- 7. Remote Monitor & Control (?)
- 8. Data Logging & Analysis (?)

Delivery set

- 1. A module;
- 2. Metal holder;

Does not need power adapter cause it has electrical plug.

Installation

Caution

Module are not water-resistant. Use protective covers for added safety. Ensure compatibility with your electrical system (220V or 110V).

Choose the right location for each module:

Flexible placement within the greenhouse.

DimmerDirector Module



About the product

DimmerDirector is an advanced automation and data management solution for customizing LED lights per controller to achieve ideal lighting conditions. With DimmerDirector, users have complete control over the lighting in your environment, allowing users to tailor the brightness and schedule of up to 100 LED lights per controller to meet users specific needs.

Available: No.

Functional

- 1. Controlling up to 16,000 individual or daisy chain LEDs in one system by adding extra Modules.
- 2. Single Module can handle up to 100 lights.
- Adapting users lighting to natural daytime lighting conditions to prevent electricity waste and/or plants overheating.
- 4. Output 0-10v, 5-10v.
- 5. Machine Learning. (?) A machine learningsystem that learns the plants of a grower and can predict future changes in the environment and correct them before they occur.
- 6. Predictions (?)
- 7. Customizable Alerts: Set notifications for critical parameter changes, ensuring prompt action when needed to maintain ideal growing conditions.
- 8. Remote Monitor & Control (?)
- 9. Data Logging & Analysis (?)

Delivery set

- 1. A module;
- 2. Metal holder;
- 3. Connector 0,75 A (needs power adapter).

Installation

Caution

Module are not water-resistant. Use protective covers for added safety. Ensure compatibility with your electrical system (220V or 110V).

Choose the right location for each module:

Can be located anywhere, preferably near the LED driver.

Sensors info

Sensor Data Transfer Schema



- 1. Analog sensors transmit information in the voltage form to the module every few seconds.
- 2. Digital sensors transmit information to the module in accordance with the I2c protocol.
- 3. Transferring information between modules. Modules can interact and exchange data with each other by local network.
- 4. Transmitting data to the router. All modules transmit information to the router.
- 5. Transfer data from the router to the server. The router transmits collected information from the module to the server.

Usage

Adding a new Sensor

To add a new Sensor in the System, plug in it to the turned-on Module. After a new Sensor has been connected to the Module; it is necessary to disconnect the Module from the power supply and turn it back on.

Note: The pH, EC and Water Temperature Sensors are plugged into HydroDirector. Newly added Sensors are shown on the top of the list:

- If the added Sensor requires calibration, the Sensor tile displays Need calibration.
- If the added Sensor does not require calibration, the Sensor tile appears in the Regular view. After a Sensor appears in the list, you can check its details by opening the Sensor page.

1. Tap the button on the Climate screen to proceed. The following screen appears with the following message:



2. Tap the **Done** button. You will be redirected back to the Climate screen.

Understanding Sensor Page

The Sensor screen displays the detailed information that it receives from the connected Sensors. The section at the bottom shows the data in a graphical and tabular format. You can check the readings for a particular day, week, or make a custom selection of the dates:



Deleting Sensor from the Sensor Page

If a Sensor was plugged out, it will not be removed from the main Climate screen. It is marked as Disconnected. To delete a Sensor from the Climate screen, please, follow these steps:

1. Tap the **Sensor** tile. The detailed Sensor screen appears:



2. Tap the Manage and then Delete button on the top-right corner of the screen. The **Delete sensor** page appears:



3. You will see message that sensor can be deleted only phisically.

Note: Deleted Sensors can be re-added to the System again, but no history will be restored, and the Sensor is treated as a new one.

Viewing Sensor Page Status

The Sensor page might show different statuses at different times:

- Online sensor is working
- Offline Offline state is shown for the Modules that have been connected but are plugged off now.

Viewing Sensor History

Climate history shows Sensor's daily, weekly, and custom data for all the connected Sensors. Tap the **Graph** to view the exact value at the chosen period:

11-29	■ 腔壁1 83%■
← 🕐 pH1 _{pH}	:
Current value	
6.06 рн	
10 Sep 00:01 10 Sep - 11 Sep	p 1D 7D
7.1	7.1
6.8	
6.5	
^{6.2} 6.07	
5.9 10 Sep	5.9 11 Sep
5.9 10 Sep Next calibration: in 12 days	5.9 11 Sep
5.9 10 Sep Next calibration: in 12 days We highly recommend to calibrate th days to prevent incorrect data. Last 2024	5.9 11 Sep Pecalibrate his sensor every 21 calibration was 2 Sep
5.9 10 Sep Next calibration: in 12 days We highly recommend to calibrate ti days to prevent incorrect data. Last 2024 Connected to	5.9 11 Sep ecalibrate his sensor every 21 calibration was 2 Sep
5.9 10 Sep Next calibration: in 12 days We highly recommend to calibrate th days to prevent incorrect data. Last 2024 Connected to HydroDirector	5.9 11 Sep Recalibrate his sensor every 21 calibration was 2 Sep

User can see information on the sensors grafic for one day, 7 days or selected by user period.

11:29 ← @H pH1 pH	重 提 羿 .ii 83% m	11:32 ¥ ₩ ₩ ₩ ₩ ₩ # 82%∎ ← → pH1 ÷	
Current value		Current value	
6.06 рн		6.05 рн	
10 Sep 00:01 10 Sep - 11 Sep	1D 7D	4 Sep 00:07 🗄 4 Sep - 11 Sep 1D 7D	
7.1	7.1	7.17.1	
6.8		6.7	
6.5		6.3	
6.2 6.07 5.9 10 Sep	5.9 11 Sep	5.9 5.67 4 Sep 5 Sep 7 Sep 9 Sep 11 Sep	
Next calibration: in 12 days	alibrate	Next calibration: in 12 days	
We highly recommend to calibrate this s days to prevent incorrect data. Last calib 2024	ensor every 21 iration was 2 Sep	We highly recommend to calibrate this sensor every 21 days to prevent incorrect data. Last calibration was 2 Sep 2024	
Connected to		Connected to	
HydroDirector		HvdroDirector	
III O	<	III O <	

To see sensors information in selected period users need to tap on the calendar button, choose period and then press "select".

11:32	E			a a	11 🖗 11	82%	11:32 图 圖 證 證 課 副 82% 🗎
\leftarrow	Seleo	t da	te			clear	
oun	MUII	rue	weu	i nu	PU	out	• pri
				1	2	3	Current value
4	5	6	7	8	9	10	6.06 рн
11	12	13	14	15	16	17	3 Sep 00:01 🗄 3 Sep - 11 Sep 1D 7D
18	19	20	21	22	23	24	7.1 7.1
25	26	27	28	29	30	31	6.7
							6.3
		Sept	ember	2024			5.9
Sun	Mon	Tue	Wed	Thu	Fri	Sat	5.66
1	2	3	4	5	6	7	3 Sep 5 Sep 7 Sep 9 Sep 11 Sep
8	9	10	11				Next calibration: in 12 days Recalibrate
							We highly recommend to calibrate this sensor every 21 days to prevent incorrect data. Last calibration was 2 Sep 2024
_	3 Sep - 11 Sep						
			Selec	t			connected to
_							HvdroDirector
	Ш		0		<		

Sensor States

There are several states of Sensor as well, depending on which, the Sensor tiles will display different elements on it. The Sensor states are shown on the following Sensor tiles:

- Regular,
- Offline,
- Need calibration,
- Need scheduled calibration (recalibration),
- Invalid (critical) value (highlighted in red).

Regular Sensor Tile

A regular Sensor tile contains the following information:

- Sensor icon,
- Sensor type,
- Sensor name,
- Current value,
- Units of measurement,
- Limit values,
- Work of the rule.

Note: Work of the rule will appear onlyf linked Devices that have defined rules, based on Sensor data, are currently running. These impacts are predefined according to the types of Devices.

Offline Sensor Tile

Offline state is shown for a Module that was connected, but is now plugged off. Offline Sensor tile contains the following information:

- Sensor icon,
- Sensor type,
- Sensor name,
- Current state.

Icon and sensor type	(SENSOR TYPE)	
	[sensor name] ←	Name
State	OFFLINE	

Note: There are some Sensors that need calibration, and some do not.

After the calibration is completed, this tile changes to the Regular Sensor Tile.

Example:

Some Sensors need to be calibrated to show correct data. Also, such Sensors have calibration frequencies that can be from 1 month to 1 year. System will notify the user about the Sensor calibration routine and how many days left till the next calibration.

Need Scheduled Calibration Sensor Tile

Need Scheduled Calibration Sensor tile contains the following information:

- Icon,
- Sensor type,
- Sensor name,
- Current value,
- Units of measurement,
- Impact of the rule,
- Calibration action.



This tile is shown when the Sensor needs calibration based on schedule to provide accurate

measurements.

Note: There are some Sensors that need calibration, and some do not. After the calibration is completed, this tile changes to the Regular Sensor Tile.

Invalid (critical) Value Sensor Tile

Critical Value Sensor tile contains the following information:

- Icon,
- Sensor type,
- Sensor name,
- Current value,
- Units of measurement,
- Limit values,
- Impact of the rule.



This tile is displayed when limits are breached:

• Current value is less than the minimum limit,

• Current value is more than the maximum limit.

In this case, regular section tiles are highlighted with red color, that is changes to Critical value sensor tile. As soon as Sensor measurement returns to the required limits, the Sensor tile changes to the Regular Sensor Tile.

Analog sensors

User may connect analog sensor to modules. Difference between analog and digital sensor for system is that analog sensor should be defined annually by User after connection. Such sensors will be defined in the list of sensors as undefined.

By click on sensor from the >List of sensors< screen system will display popup:

- 1. Popup text: "Please define connected sensor:"
- 2. Dropdown "Sensor type" allows you to choose from the list of analog sensors connected sensor type. Back end will prepare endpoint with the list of available sensor types.
- 3. Button "Define" by click assignes to analog sensor type. After this action system should reload page and mark sensor with correct type.

User may change analog sensor type any time. On the view sensor page by click on "Edit sensor type" button system will open popup:

- 1. Edit analog sensor type
- Optional info box highlighted with orange color: "In case you will change analog sensor type sensor data and all rules that were created based on that sensor will be deleted. List of devices that are assigned into this sensor data: [device_name1, device_name2]."
- 3. Show only in case there are rules which based on that sensor.
- Info box highlighted with orange color: "In case you will change analog sensor type sensor data will be deleted."
- 5. Standard info box, where no rules are created based on this sensor data.

pH Sensor

About the product

A pH Sensor measures the acidity or alkalinity of the nutrient solution used to grow plants. It helps maintain the proper pH levels required for optimal plant growth and health. pH Sensors for hydroponics are essential tools for hydroponic gardeners, as they allow for accurate and precise monitoring of pH levels, which can directly affect plant growth and yield. With a pH Sensor, hydroponic gardeners can ensure their plants are receiving the right nutrients at the right time, leading to healthier and more productive plants.

Specification

- pH range: 0-14 pH,
- Temperature range: 15-30°C (59-86°F),

- Industrial grade electrode cable length: 3m (10ft) and 5m (16.4ft).
- Is it Analog: Yes

Installation



Connect sensors first, then power the module.

Insert the sensor adapter into the round BNC slot under the label "pH".

Calibration

About calibration

Some Sensors do not require calibration, while others need to be calibrated periodically. The GrowDirector App will alert you when a Sensor needs to be calibrated, and the number of days remaining until calibration is due. When it is time to calibrate a Sensor, the Recalibrate button will become active. To start the calibration process, simply tap the **Recalibrate** button.

The following table lists the sensors that need calibrating:

Name of the	Description	Frequency
Sensor		
рН	Two step	21 days
	calibration	
	with pH 7 and	
	pH 4 buffers	
EC	One step	42 days
	calibration	
Soil	Two step	90 days
Moisture	calibration	
	100% moisture	
	and 0%	

pH calibration is done in two steps. First, you calibrate pH 4, and then calibrate pH 7.

Prepare the following before Sensor calibration:

- Paper towel,
- Distilled water,
- Buffer with pH 4 liquid,
- Buffer with pH 7 liquid,
- pH Sensor.

Note:

Do not touch the Sensor head because it is very sensitive.

Valid Calibration Period Days: 21.

Calibration Time in Seconds: 120.

To start pH calibration, please, follow these steps:

1. Tap the Recalibrate button. The Sensor calibration screen appears, which shows



2. Tap the Start calibration button. The following screen appears:


 Immerse your Sensor in distilled water and stir it several times. Pull it out and shake it to drain water drops. Use an absorbent paper towel to clean it up. Then, tap the Next button. The following screen appears:

Sensor calibration	×
[sensor name]	
Step 2 of 4 pH4 calibration	
Succesfully calibrated	
Next	

4. Dip the Sensor into a pH 4 buffer and tap the **Calibrate pH 4** button:

• There might be cases when you may want to interrupt the calibration process. Todo so, tap the **Interrupt** button:



• If the calibration does not complete because of any reason, you will be prompted to retry. To do so, tap the **Try Again** button:



5. The calibration loader with progress bar appears. When the progress bar moves to the end of the right side, calibration gets completed and the message **Successfully calibrated** appears:



6. Tap the **Next button** to start calibrating pH 7. The following screen appears:



 Immerse your Sensor in distilled water and stir it several times. Pull it out and shake it to drain water drops. Use an absorbent paper towel to clean it up. Tap the Next button. The following screen appears:



8. Dip the cleaned sensor into the pH7 buffer and tap the **Calibrate pH 7** button:

• There might be cases when you may want to interrupt the calibration process. To do so, tap on the Interrupt button:

Sensor calibration	×
Step 2 of 4 pH7 calibration	
O not touch the sensor until the end of calibration process	ł
Interrupt	

• If the calibration does not complete because of any reason, you will be prompted to retry. To do so, tap the **Try Again** button:



9. When the calibration is over, the following message appears: Sensor has been successfully calibrated!:



10.Now you can use your Sensor.

Note: For the accuracy of readings, we recommend Sensor calibration at least once every two weeks.

EC & Water temperature Sensor

About the product

An EC & Water Temperature Sensor measures the electrical conductivity of the nutrient solution used to grow plants. It helps ensure that the solution contains the correct amount of dissolved salts and minerals required for optimal plant growth and health. EC Sensors for hydroponics are essential tools for hydroponic gardeners as they allow for accurate and precise monitoring of the nutrient solution's conductivity levels, which can directly affect plant growth and yield. With an EC Sensor, hydroponic gardeners can adjust the nutrient solution's composition and ensure their plants are receiving the right nutrients at the right time, leading to healthier and more productive plants.

Specification

- EC range: 0-10 ms/cm (0-10 EC),
- Temperature range: 15-30°C (59-86°F),
- Industrial grade electrode cable length: 3m (10ft) and 5m (16.4ft).
- Is it Analog: EC Yes; Water Temperature: No.

Installation



Connect sensors first, then power the module.

Insert the sensor adapter into the square slot under the label "EC & Temp".

Calibration

Prepare the following before Sensor calibration:

- Paper towel,
- Distilled water,
- 1.4 μ S/cm calibration buffer (1.4 EC) or 2.7 μ S/cm (2.7 EC)
- EC Sensor.

Note:

Do not touch the Sensor head because it is very sensitive.

Valid Calibration Period Days: 42.

Calibration Time in Seconds: 120.

To perform EC calibration, please, follow these steps:

1. Tap the Recalibrate button. The following screen appears:



2. Tap the **Start calibration** button. The following screen appears:



- 3. Prepare EC Sensor. Make sure that the Sensor is clean.
- Clean your Sensor with distilled water.
- Pull it out and shake to move out water drops.
- Use an absorbent paper towel to clean it up. Do not touch the Sensor head because it is very sensitive.

4. Keep sensor in air and then press "calibrate" button.



4. Tap the **Next** button, choose calibration liquid (1.4 or 2.7) and then press "calibrate" button. The following screen appears:



5. Prepare 1.4 EC or 2.7 EC buffer and dip EC Sensor into it and tap the **Calibrate EC** button.

• There might be cases when you may want to interrupt the calibration process. To do so, tap the **Interrupt** button:



• If the calibration does not complete because of any reason, you will be prompted to retry. To do so, tap

the Try Again button:

11:25 回 國 很等。4 90% EC sensor calibration × EC1 ×
Step 4 of 4 Calibration in liquid
1 Don't touch the sensor head while calibration process
Interrupt

6. When the calibration is over, the following message appears: Sensor has been successfully calibrated!:





Sensor has been successfully calibrated!

Now you can return the sensor in its place. For the accuracy of the readings, we recommend regular calibration.



7. Now you can use your Sensor.

Air Temperature, Humidity & VPD Sensor

About the product

An Air Temperature, Humidity & VPD Sensor monitors the temperature, humidity and VPD levels in the growing environment. It provides accurate and up-to-date information on the conditions inside the grow room, greenhouse, or indoor farm. Professional growers use Air Temperature, Humidity & VPD Sensors to ensure that the conditions in the growing environment are optimal for plant growth and health. With an Air Temperature, Humidity & VPD Sensor, you can adjust temperature, humidity and VPD levels, identify potential issues such as high humidity or temperature fluctuations, and take corrective actions as needed. This helps ensure the highest quality of crop yield and consistency in plant growth.

Specification

- Temperature range: -30°C +100°C (-22F +212F),
- Temperature accuracy: ±2.5°C (±1.4F),
- Humidity range: 0-100% RH,
- Humidity accuracy: ±5% RH (+25°C (+77°F)),
- Cable length: 2m (6.5ft) and 5 m (16.4ft).
- Is it Analog: No
- Non waterproof



Insert the sensor adapter into the one of square RJ12 slots on the back module panel.

Calibration

No need.

Soil Moisture Sensor

About the product

A Soil Moisture Sensor measures the amount of water content in soil. Soil Moisture Sensors are critical in ensuring that plants receive the optimal amount of water, as over or under watering can harm plant growth and development. Soil Moisture Sensors work by measuring the electrical conductivity or resistance of soil, which changes depending on the amount of moisture present. The Sensor data can be used to trigger automated irrigation systems or to guide manual watering decisions. Overall, Soil Moisture Sensors are an essential tool for horticulturists to maintain healthy plant growth and maximize crop yield.

Specification

- Temperature range: 15 30°C (59-86F),
- Moisture range: 0-100%,
- Accuracy: ±10%,
- Cable length: 2m (6.5ft).
- Is it Analog: Yes.



Insert the sensor adapter into the one of square RJ12 slots on the back module panel.

Calibration

Valid Calibration Period Days: 90.

Calibration Time in Seconds: 120.

To start Soil Moisture calibration, please, follow these steps:

- 1. Before connecting to module sensor must be into the water!
- 2. Tap the SensorDirector button and then tap Add Sensor. The following screen appears:



2. Read instructions and then tap the **Done** button. The following screen appears:



3. Tap Start Calibration button. The following screen appears:



4. Keep Soil Moisture in air and then tap the **Calibrate** button. The following screen appears:

Soil Moisture sensor cal ×
Step 1 of 2
Soil moisture calibration
 Keep Soil moisture in air Press the "Calibrate" button and wait for the completion of the next step
Calibrate soil moisture

5. Wait a few minutes until the first calibration step will be done. The following screen appears:



6. Put Sensor into water and then tap **Calibrate** button. The following screen appears:



the next step



7. Wait a few minutes until the second calibration step will be done. The following screen appears:



8. Tap **Done** to end Calibration. The following screen appears:



CO2 Sensor

About the product

A CO2 Sensor monitors the levels of carbon dioxide (CO2) within the growing environment. CO2 is essential for photosynthesis, and maintaining optimal levels can improve plant growth, development, and yield. CO2 Sensors work by detecting changes in the amount of CO2 in the air surrounding the plants, typically by measuring changes in the infrared light absorption or conductivity. The Sensor data can be used to adjust ventilation or CO2 injection systems to maintain optimal growing conditions. Overall, CO2 Sensors are an important tool for horticulturists to optimize plant growth and yield in controlled environments.

Specification

- Limit min value: 0
- Limit max value: 5000
- Precision: 5% (+-100)
- Cable length: 2m (6.5ft).
- Is it Analog: No.
- Non water-resistant



Insert the sensor adapter into the one of square RJ12 slots on the back module panel.

Calibration

No need

PAR Sensor

About the product

A PAR Sensor measures the quantity and quality of light available to plants within a growing environment. PAR stands for photosynthetically active radiation, and these Sensors can provide valuable data on the intensity and spectrum of light that plants require for optimal growth and development. PAR Sensors work by detecting the number of photons in the range of 400-700 nm, which is the range of light that plants use for photosynthesis. The Sensor data can be used to adjust artificial lighting systems or to optimize plant positioning within the greenhouse to maximize light exposure. If you're interested in optimizing your greenhouse for plant growth and yield, consider adding a PAR Sensor to your collection of horticulture tools today.

Specification

- Temperature range: 15-30°C (59-86F),
- Humidity range: 0-99% (RH),
- Spectral range: 400-750 nm ±5 nm,
- Cable length: 5m (16.4ft).
- Is it Analogue: Yes.



Insert the sensor adapter into the one of square RJ12 slots on back module panel.

Calibration

No need

LUX Sensor

About the product

A LUX Sensor measures the intensity of light available to plants within a growing environment. LUX Sensors can provide valuable data on the amount of light that plants require for optimal growth and development. LUX Sensors work by detecting the level of luminance in a given area, which is measured in lux. The Sensor data can be used to adjust artificial lighting systems or to optimize plant positioning within the greenhouse to maximize light exposure. If you're interested in optimizing your greenhouse for plant growth and yield, consider adding a LUX Sensor to your collection of horticulture tools today.

Specification

- LUX range: 0-200000 lux,
- Spectral range: 380-780 nm,
- Cable length: 1m (6.5ft).
- Is it Analogue: No.



Insert the sensor adapter into the one of square RJ12 slots on back module panel.

Calibration

No need

Devices

Types and Viewing

Types

You can add the following types of Devices:

- Irrigation Pumps,
- Water Pumps,
- Circulation Fans,
- Inline Fans,
- Outline Fans,
- Lights,
- Heaters,
- CO2 Valves,
- Humidifiers,
- Dehumidifiers,
- Dosing Pumps,
- Irrigation Valves,
- Air Conditioners,
- Chillers,

Viewing

When users open the GrowDirector App for the very first time, there are no Modules and Devices in the System yet. Therefore, users must first add (connect) the required specific Modules, and to connect to the Modules Devices to proceed. There can be 2 scenarios on the Devices screen:

- No Module detected When the Modules have not been connected yet,
- No Device detected When the Modules are connected, but the Devices have not been connected.

It is possible to connect Devices only to the required specific Modules. Devices cannot be present in the System without being connected to the required specific Modules. Message No Module detected is shown if the required specific Modules have not been connected for this account yet. The following Modules allow connection of Devices:

- SocketDirector,
- DryContactDirector,
- DimmerDirector,

On the Devices screen, tap the Connect module button. You will see a screen with an option to make a connection:



Message You haven't added Devices yet is shown if the Modules are connected, however, no Devices have been connected yet. To connect a new Device, tap the Plus button on the top-right corner of the Devices screen:





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 Image: Climate
 Image: Devices
 Modules
 Settings

Devices screen contains main information about all connected Devices available for the user:



The Devices on this screen are displayed as tiles with their key information and are sorted according to the date when they were connected. The most recently connected Devices are displayed first. Users can see the following on the Device screen:

0

- Name of the screen on the top-left corner,
- Action to connect new Device on the top-right corner,
- Filter to see All Devices or based on the Auto / Manual mode:
 - All displays all Devices currently configured in the System regardless type, working mode, etc.,
 - Auto displays all Devices that are running in automatic mode based on the rules configured,

- Manual displays all Devices that are running in manual mode based on the rules configured.
- List of all available devices,
- TabBar or the main menu of the App.

There are several states of the Device, depending on which Device card will have different elements on it:

- Auto (mode) working (turned on now),
- Auto (mode) idle (turned off now, waiting for the rule),
- Auto (mode) offline (turned off now or broken),
- Manual (mode) working (turned on now),
- Manual (mode) idle (turned off now),
- Manual (mode) offline (turned off now or broken).

Tap any of the Device tiles and you will be redirected to the screen with this specific Device where you can view detailed information.

Usage

Adding new device

To add a new Device, please, follow these steps:

- 1. Tap on the device icon at the bottom of the screen to go to the device settings.
- 2. Tap the **Plus** button on the top-right corner of the Devices screen. The following screen appears:



The system will offer you a connection to the specific Modules that handle the Devices chosen.
 Tap the **Type of Device** you want to add. The following screen appears:



- 4. Enter the name of the Device in the **Device name** field.
- 5. Tap the **Select module** button. The following screen appears:



6. Tap a **Module** to which you want to add a Device. The following screen appears:



 Select the Socket to which you want to connect your Device. Then, return to the first screen and tap the **Connect** button:

Add new device	×
Devie type	
🕸 Chiller	~
Connection place	
Select module	
Device name	
Connect	

Note: When there are no Modules left for connecting additional Devices, you can reach out to us to purchase additional Modules.

Switching On device

After adding a Device, you need to switch it on physically so that it can start functioning. You can enable the Device to run continuously or specify a duration for the Device to run:



To switch on a Device, please, follow these steps:

- 1. Tap on the device icon at the bottom of the screen to go to the device settings.
- On the Devices screen, tap the **On** button corresponding to the Device you want to switch on. The following screen appears:

Ru	n continuo	usly
Be carefull w	ith this option death of the p	. It can lead to lant.
0000	Additional Soci	cets
Specify how le	ong the devi	ce should wor
Hours	Minutes	Seconds
00	00	00
00	00	00
00	00	00
Cance	R	un device

- To run the Device continuously, tap the **Run continuously** button.
- To specify how long the Device should run, select the hours, minutes, and seconds. Then, tap the **Run device** button.

Switching Off device

To switch on a Device, please, follow these steps:

1. Tap on the device icon at the bottom of the screen to go to the device settings.

2. To switch off a Device, tap the **Off** button corresponding to the Device you want to switch off:



Deleting device

To delete a Device that you added, please, follow these steps:

- 1. Tap on the device icon at the bottom of the screen to go to the device settings.
- 2. On the **Device** list screen, you need to select the required device. Click on it, and the Device page opens. You need to delete all the rules (if any), and in order to delete the rules, you need to deactivate them, and tap the **Delete** button on the top-right corner of the screen. The following screen appears:



4. Tap the Manage and then Delete button:



Device Rules

You can also set custom rules based on which you want to manage your Device operations. You can set rules to make your Devices run based on the following:

- Daily rules one rule for each further day
- Growth stages rules for configured amount of days from one date to another.

Set daily Rules

To set a Device rules you need to follow steps:

Note: If you need to set up a rule that is based on sensor data metrics, make sure that you have SensorDirector, Temperature sensors and control module connected.

- 1. Tap on the device icon at the bottom of the screen to go to the device settings.
- 2. Tap the Device tile for which you want to set a rule. The following screen

appears:



3. Tap the Routine Rule tile.

4. Choose rules by Schedule or Sensor data.



5. Rules for sensor data are configured based on sensor values. The system will show a list of available sensors for this device. Select one sensor to continue configurations.

83	{sensor name} Air temperature	۲
83	{sensor name} Air temperature	0
83	{sensor name} Air temperature	0

6. On the next step you may change the selected sensor, set up day and night min max values or just set up full day min max values.



To set up the Schedule rule button you may click on the correspondent tile from the 2nd step.
 The system will open the Rule by schedule screen.

Note: Schedule rules may be created only based on time with duration. Schedule rules cannot be created based on specific week days or dates.



8. Click on **Add start time & Duration** button to choose time when rule starts and its duration.



9. After choosing at least one rule, the **Set rule** button becomes available. You can create more rules or save daily rules.

Example of setting rules:

User question: how do i make a rule for temperature from 30C to 40C?

Answer with instruction:

To create a rule for temperature ranging from 15°C to 30°C in the GrowDirector system, you can follow these steps:

- 1. Make sure that you have a SensorDirector, Temperature sensors and control module connected.
- 2. Tap on the device icon at the bottom of the screen to go to the device settings.
- 3. For rule setting tap on the device tile for which device you want to set the rule.
- 4. Next, select the Routine Rule tile.
- 5. Choose rules based on Sensor data.
- 6. Then you will see a list of available sensors on your screen.
- 7. Select the temperature sensor to continue with the configurations.
- 8. Go and get to the tile of "Run if value on sensor" and tap on More.
- 9. In tile "Than" choose 15C and in tile Until choose 30C.
- 10. Tap on "Set rule".
- 11. It will show you the next screen where the switch "Automation" is in green. If you want to stop automation, tap on the switcher again.

Setting a device Rule based on Growing stages

This function is not realized yet!

To set a device rule by **Growing Stages** please proceed with following steps:

- 1. Tap on the device icon at the bottom of the screen to go to the device settings.
- 2. Tap the **Device** tile for which you want to set a rule. The following screen appears:



- 3. Tap the Growth Stages tile, Growth stages configuration screen will appear.
- 4. Choose rule by Schedule or Sensor data



5. Rules for sensor data are configured based on sensor values. The system will show a list of available sensors for this device. Select one sensor to continue configurations.



6. On the next step you may change the selected sensor, set up day and night min max values or just set up full day min max values.

Coloct controlling conce	
Select controlling sense	or /
Main air conditioner	
Chiller	
Sensor data	
<pre>sensor name}</pre>	\sim
Air temperature	
Growing period	
dd mon - dd mon	÷
Day / Night	
Cool air if value on sensor	
More than Until it become	e
°C	°C
Set rule	

7. To set up the Schedule rule you may click on the correspondent tile. System will open the Rule by schedule screen.



8. Click on the **Add start time & Duration** button to choose the time when the rule starts and its duration. Choose Growing period dates when correspondent rule will work.

< Set Time	& Duration	>
	Start at	
12		
1	00	AM
	01	PM
	Duration	
Hours	м	inutes
00		00

9. After choosing at least one rule, the **Set rule** button becomes available. You can create more rules or save daily rules.

Editing\Deleting a Rule

To edit a rule that you have created earlier, please, follow these steps:

1. Tap on the device icon at the bottom of the screen to go to the device settings.

2. Tap the **Device** for which you want to edit a rule. The following screen appears:



- 3. Choose a rule you want to edit.
- 4. Edit Rule configuration or just delete rule.