

All our information and advice is compiled with the greatest possible care and in accordance with state of the art technology. However we are unable to assume any liability for the contents. - December GMS 20161

More information on the GroSens System can be found at www.grodan.com/grosens

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Installation Guide

MultiSensor

GROSENS[®]
Makes precision irrigation possible

www.grodan.com/grosens

Precision Growing

With its focus on using the minimum input materials to generate the maximum output, Precision Growing is the most efficient and effective form of growing. It not only reduces growing costs but increases crop yield and quality. What's more, this form of growing actively contributes to sustainable horticulture.

Installation procedure – step 1

1

Cables placed in the greenhouse, including extenders or switches

2

Unpack Smartbox and install smartbox at location grower

3

Activate Smartbox and fill out software

4

Test Receiver and Sensors in the office:
- Network connection
- Add in software:
address sensors to irrigation sections

5

Place Receiver in the greenhouse and place Sensors in slabs

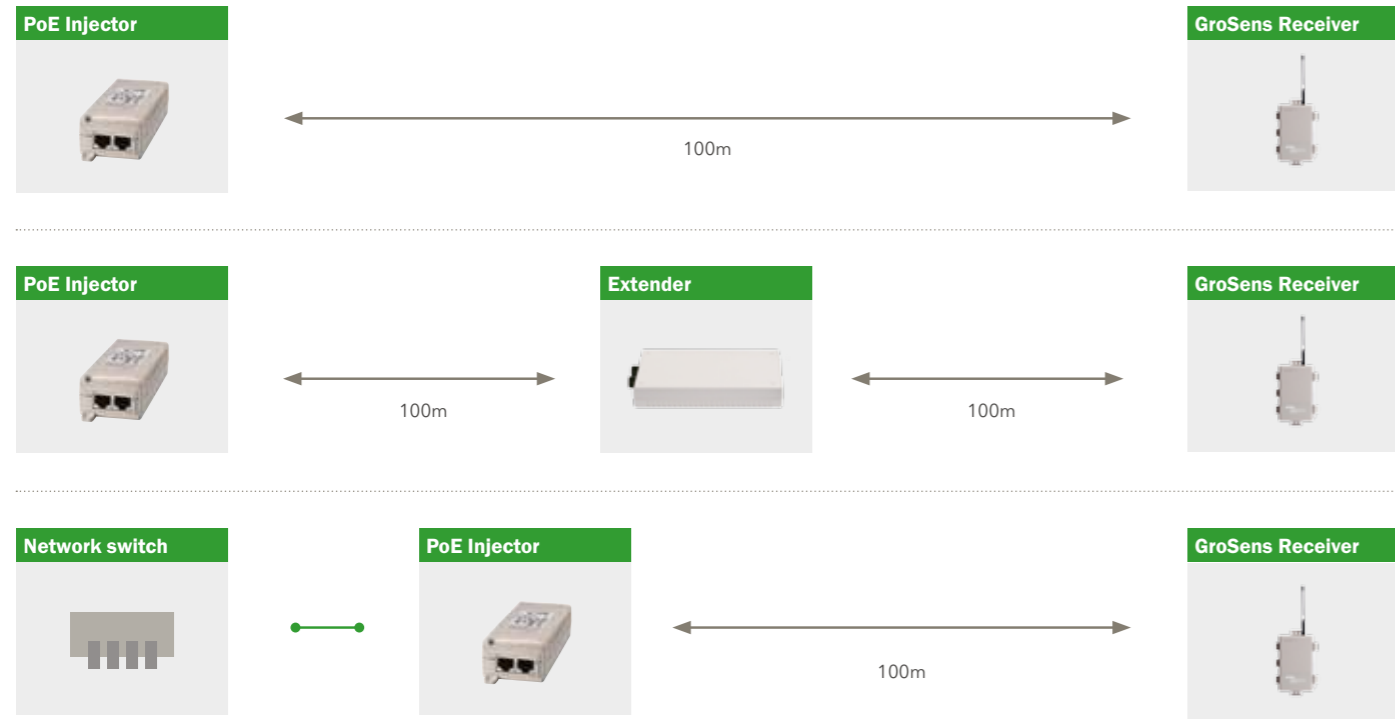
6

Connect and install Converter » set values for readings

GroSens – alternative for multiple extenders

- Every 100 meters, an extender is needed to carry the signal
- Instead of an extender, a switch box can be used to carry the LAN signal into the greenhouse
- Every switchbox needs power in the greenhouse – a power plug should be available.
- PoE after the switch to receiver.
- Benefits:
 - Flexibility in connecting other items in the greenhouse that require an internet signal

Layout cables in the Greenhouse



- 1 Cables placed in the greenhouse, including extenders or switches
- 2 **Unpack Smartbox and install smartbox at location grower**
- 3 Activate Smartbox and fill out software
- 4 Test Receiver and Sensors in the office:
- Network connection
- Add in software:
 » address sensors to irrigation sections
- 5 Place Receiver in the greenhouse and place Sensors in slabs
- 6 Connect and install Converter » set values for readings

Connecting the Smartbox



When the smarbox is connected, it will find an IP address and displays it in the front screen. Type the IP address in the internet browser, it will give access to the smartbox software
Preferred browsers are Google Chrome and Mozilla Firefox.
Explorer should be 10 or higher.

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Activate the system – software



1. Create Initial User: the grower
2. Fill in email address and Password for the grower.



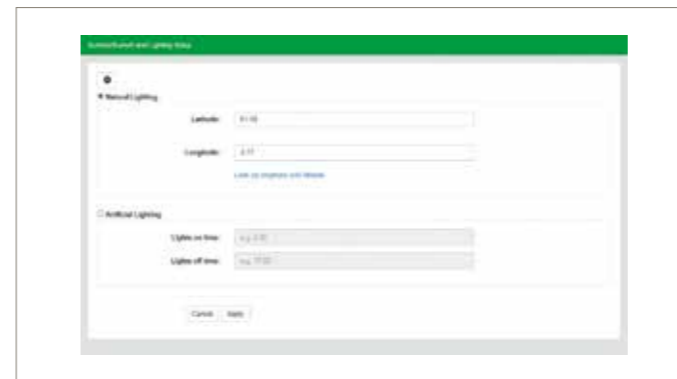
Login as administrator.

If you or grower forgot username and password you can always log in with:
Alternative email address: info@grodan.com

Sunrise/Sunset and Lighting setup



Click by "Settings" on "Sunrise/Sunset and Lighting setup"



1. Select natural lighting
2. Click on "Look up longitude and latitude".
A new tab will open.



1. Fill in the "Place Name" and click on "Find". The longitude and latitude will be given.
2. Copy longitude and latitude data to Sunrise/Sunset and Lighting setup" screen.
3. Click on "Apply".



If you choose artificial light, you can set the time interval, data will come in every 3 minutes:

For example: if you choose 02.00 till 20.00, data of the sensors will be sent every 3 minutes.

Click on "Apply"

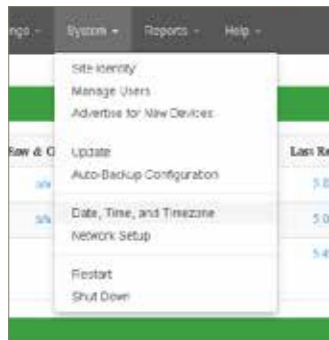


1. Go back to Sunrise/Sunset and Lighting setup" screen
2. Click on "Apply"

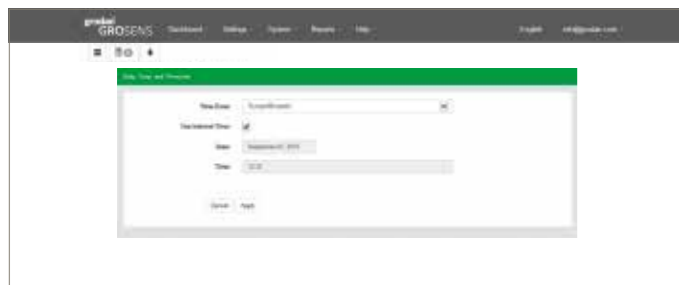
The GPS coordinates will determine the sunrise and sunset based on the co-ordinates and plot daylight period in the graphs.

During the day, data is sent every 3 minutes, during the night data is sent every 30 minutes.

Date, Time and Time zone



Click by "System" on "Date, Time, and Timezone"



1. Select time zone
2. Mark "use internet time"
3. Click on "Apply"

Manage Users



Click on "system", "manage users"



On this screen you will find the password and email address you created. Here you can add other addresses.

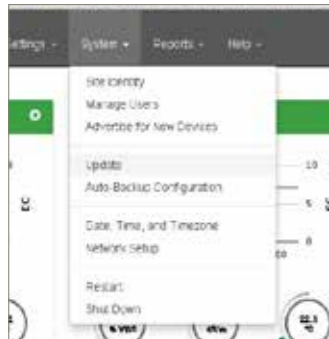
Please note that:

Notifications should be set at none! Otherwise all alerts will be sent to the email address, also the harmless ones.

The User level for the main user should be set as administrator to access all functions!

If you choose read only you can only access graphs

Update



Click by "System" on "Update"

The system will look for available software updates.

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Test Receiver and Sensor

PoE Injector

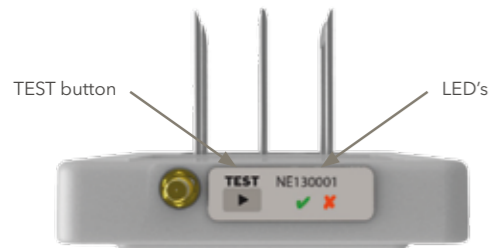


GroSens Receiver





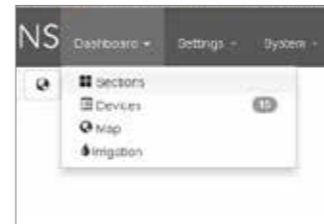
Both link and power light of receiver should be green



After activation, both LEDs will light up, after a few minutes, only the green LED will glow:

- The green LED indicates round-trip communication with the GroSens Smartbox.
- The red LED indicates a communication problem with the GroSens Smartbox.

Test Receiver and Sensors – in software display



Click by "Dashboard" on "Devices" or click directly on: 

Name	Serial#	Run & Offer	Lat (m/s)	Lat (km)
NE130001	10.1	10.1% 100	10.1 m/s	10.1 km
NE130002	10.2	10.2% 100	10.2 m/s	10.2 km
NE130003	10.3	10.3% 100	10.3 m/s	10.3 km
Average		10.1% 100	10.1 m/s	10.1 km

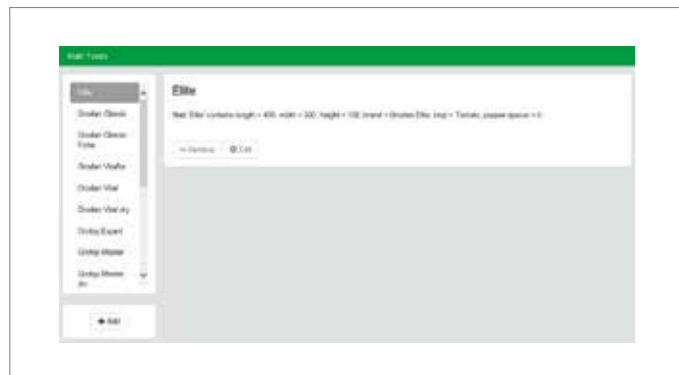
You can check in the overview screen if the Receiver and Sensor data are coming in (status lights should be green or yellow triangles ⚠)

If a red circle shows up  the device is not working, action is needed (see installation manual).

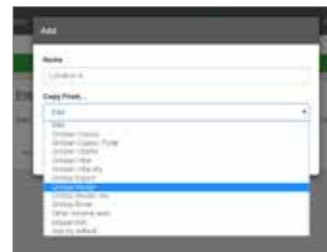
Create Slab Types



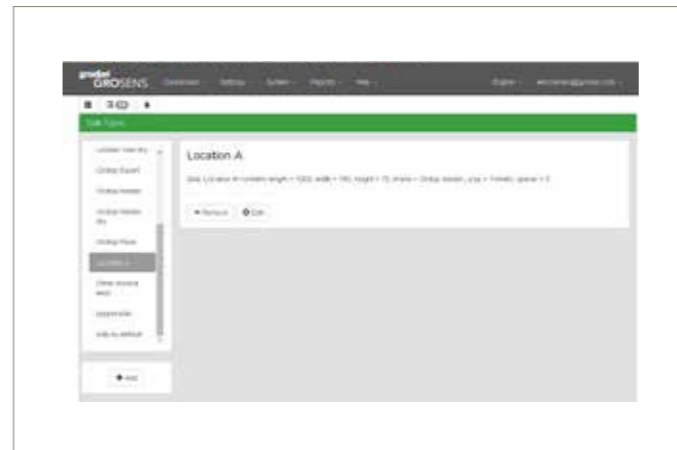
Click by "Setting" on "Slab types"



Click on: **+Add**



1. Fill in a name (together with grower)
2. Choose a slab by "Copy From"
3. Click on "Apply"



The new slab type is made (Fe: Location A)
Click on: **+Add**

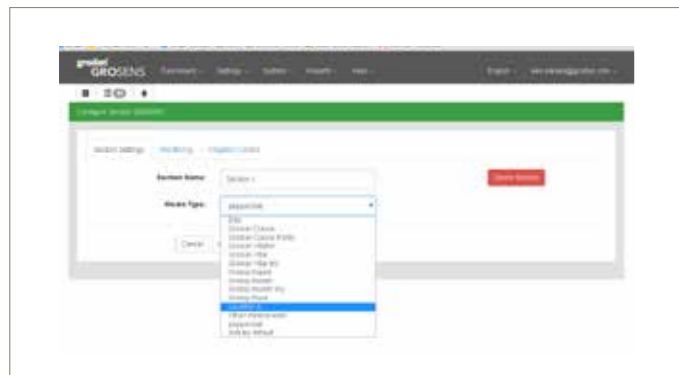
Fill in Length, Width, Height, Brand of the slab, Crop and the number of used spacers. You can select an item or fill in a new item.



Create sections

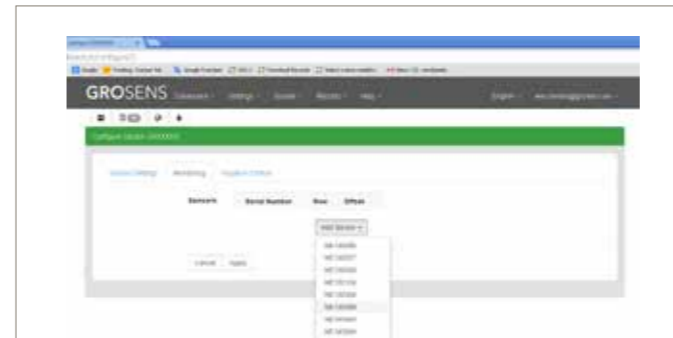


Click by "Settings" on "Create New Section"



1. Define a section name (together with the grower).
2. Select the right Media Type - the ones you just made (see former sheets).
3. Click on "Apply".

Assign the Sensors to a section



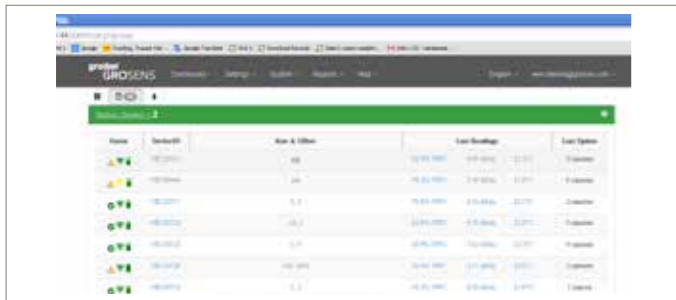
You can select the sensors in the "Monitoring" tab.
Click on "Apply".



After apply, Sensor will be displayed in the overview.

You can delete a sensor from a section by clicking on an X.

Define the Sensor Row & Offset for Sensors



Click on the sensor number (Fe) or the Row & Offset (Fe) of the Sensor.



We recommend to define the place of the sensors in the greenhouse.

1. Fill in the "Row" & "Offset" correctly to be able to find your sensors back.
2. Click on "Apply"

Define the sensor Row & Offset for a Receiver

Name	DeviceID	Type	IP Address	Last Update
...	...	Receiver
...	...	Receiver
...	...	Gateway

Also for a Receiver, a row and offset can be filled out. **Please do so.** This will indicate where the Receiver is placed in the greenhouse and it gives you the possible to track the Receiver



If everything works and your sensor and receiver are visible in the devices screen, you can take them to the greenhouse and place them.

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- Add in software: address sensors to irrigation sections

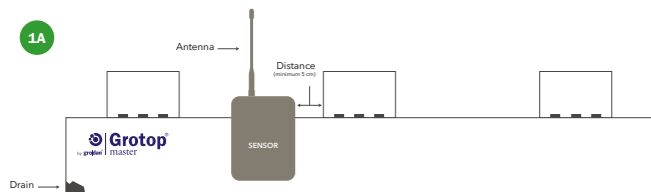
5

Place Receiver in the greenhouse and place Sensors in slabs

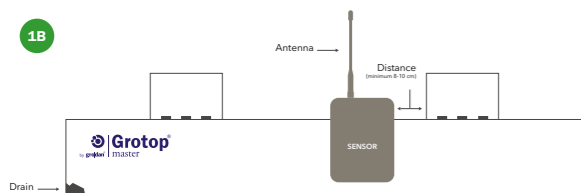
6

Connect and install Converter » set values for readings

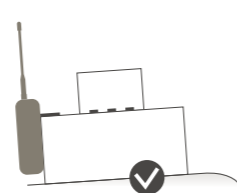
1A



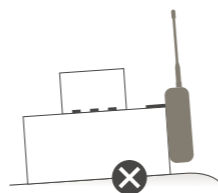
1B



2A



2B



Placing Sensor instruction

1A 1B

- Place sensor 8 - 10 cm left from the 2nd block from the drain hole.
- Distance 1st to 2nd block, always more than 2/3 - 1/3 if blocks are close to each other, minimum 5 cm.
- Antenna, by placing sensor always furthest away from the block.

2A 2B

In case, sensor over the width is on a slope, place sensor at the lowest site of the slab.

Setting the support plate for different slab heights of the GroSens sensor.

For all slabs with a height of 7,5 cm. The support plate must be placed in the standard (lowest) position, see picture.

3A



For all slabs with a height of 10 cm. The support plate must be placed in the upper (highest) position, see picture.

3B



Installation procedure – step 6

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Connecting the Converter

Network Switch



GroSens Converter



Climate computer



Type	Range	Range
Water Content (WC)	0-5V	0-100% V/V
Electric Conductivity (EC)	0-5V	0-20 mS/cm
Temperature (Temp)	0-5V	0-50°C

Important: Only use the convertor with the supplied adapter!

Although that de convertor indicates that it will run on a powersource from 7-40 volts it should only be used with the supplied adaptor. To high power might damage the convertor.

The convertor communicates with 100Mbps full duplex , so the port it is connected to should be set at this protocol.

Installation procedure – step 6

Assign the Converter to a section

Name	DeviceID	Type	IP Address	Last Update
CONVERT	CONVERT	Converter	10.31.16.87	11 seconds
RECEIVER	RECEIVER	Receiver	10.31.16.88	1 day
GATEWAY	GATEWAY	Gateway	10.31.16.86	13 seconds

Converter must be seen in the overview screen (click on) when properly installed.

Name	DeviceID	Last Update
SECTION 1		11 seconds
SECTION 2		1 day
SECTION 3		13 seconds

You can connect the Receiver to a section by clicking on

Click by "Irrigation Control" on the Converter number.

Save by clicking on "Apply"

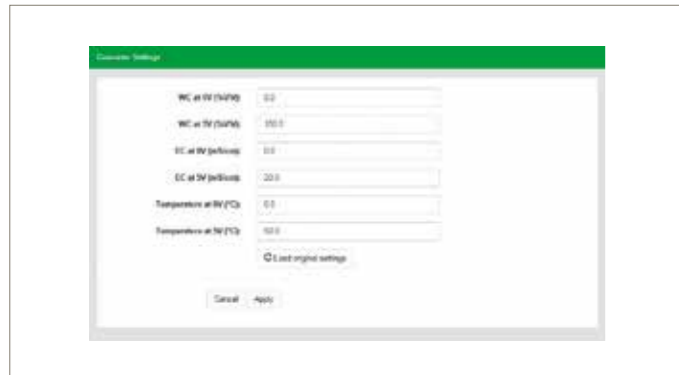
Name	DeviceID	Last Update
SECTION 1		
SECTION 2		1 day
SECTION 3		13 seconds

In the overview screen you see this symbol after the section name by a successful connection.

Converter settings



Click by "Settings" on "Converter Settings"




If you have different volt settings. You can change the Converter settings on this page.

Click on "Apply"

You can always get back to the original settings by clicking on "load original settings"

To install the app, go through the following steps:

- If you want to apply for e-Gro, send email to webmaster@grodan.com. Place in this mail:
 - Name
 - Company name
 - Smartbox number (in display of smartbox (S0130027))
 Activation mail will be sent back in a couple of days. Click on activation mail (green box) to activate account
- Smartbox must be updated to the latest software; click on  system in Grosens software and afterwards on update
- After the update, restart smartbox , click on system in Grosens software and afterwards on restart
- Fill in your own chosen password - remind password, is not saved by the system
- Download app (app store or google play)
- After the update of the smartbox and activation of the app, the old data will be loaded, will take 30 minutes before graphs are visible

Log in app:

- Username *e-mail address*
- Password *chosen yourself*
- If you do not succeed, call Customer service

