NewRoniX

User Manual NRX5001

NewRoniX
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User Manual NRX5001
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1 Content

2 Quick Setup....2
3 NRX5001 hardware overview....5
4 Connect to NRX5001....6
4.1 Default WiFi SSID and password....6
4.2 Custom WiFi SSID and password....6
4.2.1 AP mode....6
4.2.2 Client mode....7
5 Main screen....8
5.1 How to read Main Screen....8
5.2 Manual Mode....8
6 Schedule Menu....9
6.1 Add Schedule event....10
6.2 Edit Schedule event....13
6.3 Delete Schedule event....14
7 Settings Menu....15
7.1 Network Menu....15
7.2 Time/Date Menu....17
7.3 Manual SLS Menu....17
7.4 LUX sensor Menu....18
7.4.1 Calibrate LUX Sensor....19
7.5 System Menu....20
7.5.1 Upload configuration Menu....21
7.5.2 System Parameters....23
7.5.3 Error Status Menu....24
7.5.4 FW update Menu....25
8 Reset....26
9 Factory Reset....26
10 System error and recovery....27

2 Quick Setup

Quick setup can be used during initial installation of NRX5001 or after **Factory Reset**:

1. On surface of NRX5001 you find QR code

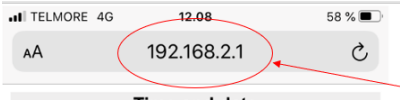
2. Connect:
    - Open the camera on your smart phone and scan the QR code
    - Select: “Use NRX-xxxxxxxx-network“ to connect to NRX5001 via WiFi

    OR

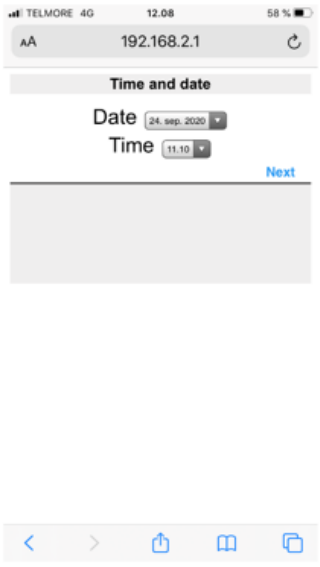
    - Open your Smart Phone wifi setup
    - Search for WiFi SSID listed on surface on NRX5001: “NRX-xxxxxxxx”
    - Connect using default password listed on surface of NRX5001: “nrxadmin”

    Note: Instead of using a smart phone it is also possible to connect and control NRX5001 from a PC using NRX5001: SSID and key (password)

3. Open a browser on your Smart phone and write **192.168.2.1** and then search



4. Now you will enter the Setup menu for NRX5001:
    a. Enter Date and Time and press **Next**



Note: If you see a different screen than what is shown above then perform **Factory Reset** and go back to point 2 again. To do **Factory Reset:**

- Press the "**Reset**" button
- The button will start flashing with red light with 1 second period
- Keep the "**Reset**" button pressed until it stops flashing (~15 seconds)
- NRX5001 will now restart with Factory settings

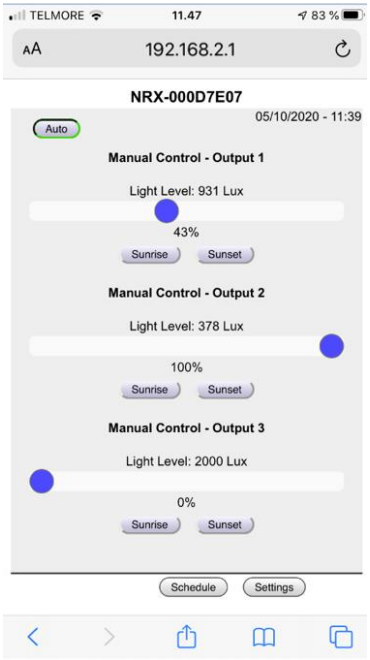
Now go back to point 2 and start again

5. Select configuration file from drop down menu:
    a. **default** : Default setup of NRX5001 with empty schedule – user has to set up manually
    b. **custom** : Customer specific setup which will set up everything according to customer specific requirements including schedule and configuration of lux sensors. This configuration is valid only for customers buying this option

6. Press **Next** and the configuration of the system will start. In case configuration includes LUX sensors an auto calibration will start and the following screen will occur:

7. Await the calibration to complete – it can take up to 45 seconds

8. Setup is now completed and the system is running. NRX5001 will return to **Main Screen**. You can now close the connection by closing browser



3 NRX5001 hardware overview

PIN name	Description	Input / Output	Range
V+	Supply	Input	12VDC – min.10.8V max 13.8V – max 2A
GND	Ground	Input	Ground
NRX Sensor	Sensor input	Input	RJ45 connector for NRX sensor
+12V	+12V	Output	12VDC
+12V	+12V	Output	12VDC
O1	0-10V output1	Output	0-10VDC
R1	Relay output1	Output	12VDC Relay Drive – active grounded
O2	0-10V output2	Output	0-10VDC
R2	Relay output2	Output	12VDC Relay Drive – active grounded
O3	0-10V output3	Output	0-10VDC
R3	Relay output3	Output	12VDC Relay Drive – active grounded

Reset button, please see section **Reset**, **Factory Reset**

4 Connect to NRX5001

4.1 Default WiFi SSID and password

If you did not change WiFi SSID nor password in **Settings Menu** / **Network Menu** the WiFi SSID and password will have default values. This is also valid after a **Factory Reset**.

On surface of NRX5001 you find QR code

Connect:

- Open camera on your smart phone and scan the QR code.
- Select: “Use NRX-xxxxxxxx-network“ to connect to NRX5001 via WiFi

OR

- Open your Smart Phone wifi setup
- Search for WiFi SSID listed on surface on NRX5001: “NRX-xxxxxxxx”
- Connect using default password listed on surface of NRX5001: “nrxadmin”

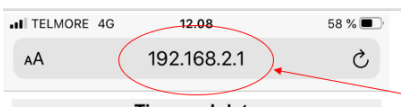
Note: Instead of using a smart phone it is also possible to connect and control NRX5001 from a PC using NRX5001: SSID and key (password)

4.2 Custom WiFi SSID and password

4.2.1 AP mode

This assumes you did change WiFi SSID and/or WiFi password in **Settings Menu** / **Network Menu** and defined NRX5001 as running AP mode (NRX5001 is a WiFi Access point):

- Open your Smart Phone WiFi setup
- Search for the WiFi SSID you defined
- Connect using the password you defined
- Open browser and type **192.168.2.1** – you will now connect to NRX5001 main screen

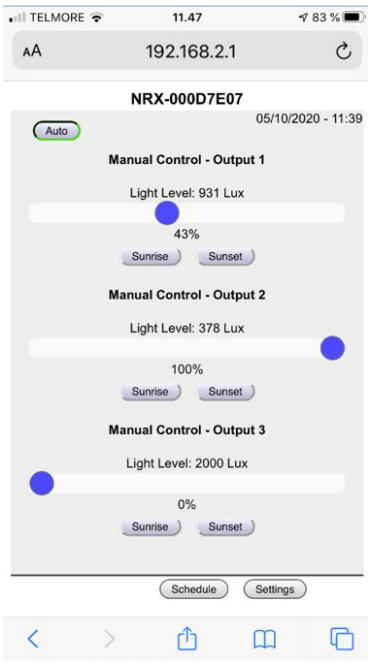


4.2.2 Client mode

This assumes you did change WiFi SSID and WiFi password in **Settings Menu** / **Network Menu** and defined NRX5001 as Client to connect to a local WiFi network. NRX5001 will in this case run in Client mode:

- Before connecting you will have to setup fixed IP address in your local WiFi router for NRX5001 MAC address, you find NRX5001 MAC address on surface of controller or inside **Setting Menu/System menu**
- Open your Smart Phone WiFi setup
- Search for the WiFi SSID of the WiFi network
- Connect using the password for the WiFi network
- Open browser and type the fixed IP address you have reserved for NRX5001 in your router setup
- You will now connect to NRX5001 **Main Screen**

5 Main screen

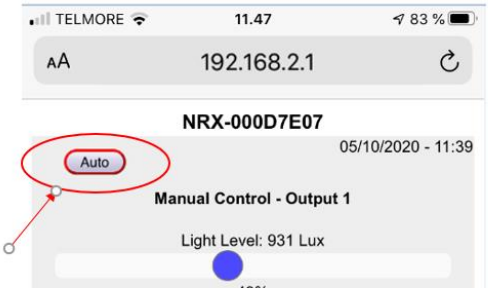


5.1 How to read Main Screen

On **Main Screen** you will see the status on the enabled Light output lines.

- Intensity of light is shown as an intensity bar
- The actual value of intensity between 0% and 100% shown below the intensity bar
- In case LUX sensor(s) are active for the Light output line the light level is shown as the LUX value measured for LUX sensors associated the Light output line
- **Auto** being green indicates that the system runs in **Auto Mode** running the automated schedule for the system

5.2 Manual Mode



It is possible to change into **Manual Mode** by:

- Manually changing one of the intensity bars
- Manually pushing **sunrise** / **sunset** of one of the Light output lines

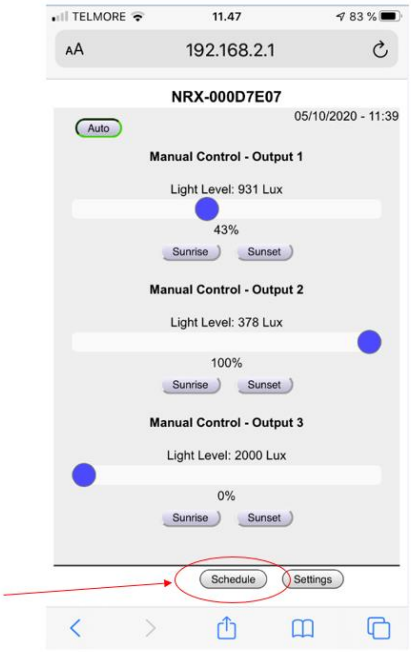
When doing this the **Auto** button will turn into red to indicate that the system is now in **Manual Mode**. In **Manual Mode** the auto scheduling of events continues in the background, but it will not affect the Light output lines as long the system is in **Manual Mode**.

Leaving **Manual Mode** and go to **Auto Mode**:

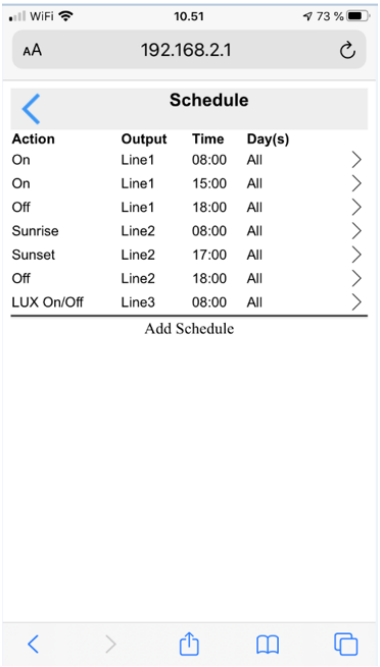
- Push the **Auto** button and it will return to become green – NRX5001 is now again in **Auto Mode**
- **IMPORTANT:** remember always to leave system in **Auto Mode** if you want automated schedule

6 Schedule Menu

Enter the **Schedule Menu** by pushing the **Schedule** button on main screen

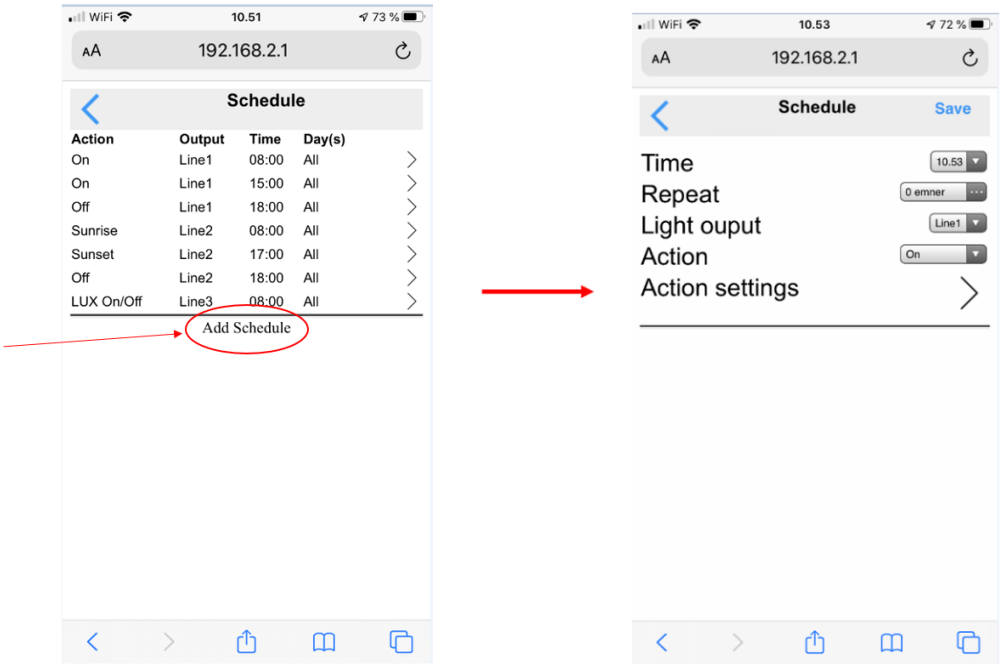


When entering the **Schedule Menu** you will see the list of the schedule events currently active on the NRX5001

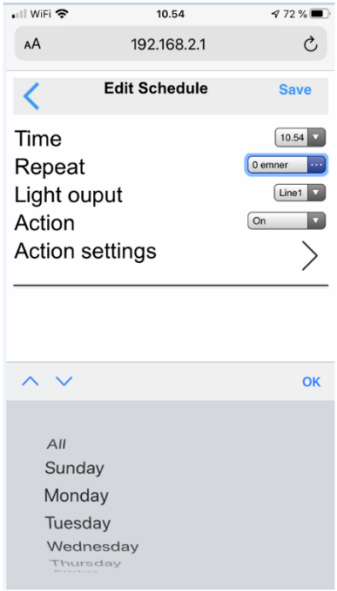


6.1 Add Schedule event

To add a new schedule event press **Add Schedule**. After entering the schedule event parameters press **Save** to store event. It is possible to have in total up to 20 schedule events

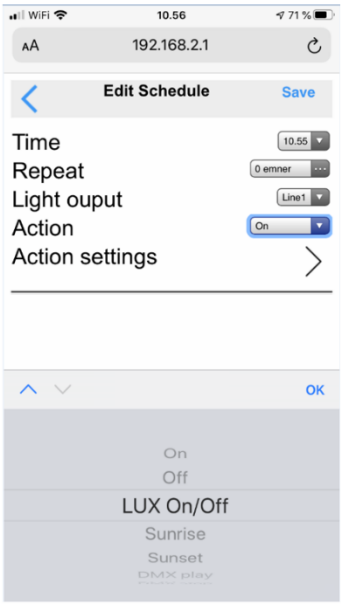


- **Time** : Time for the event to happen
- **Repeat** : Set which day(s) during the week you want the event to happen, **All** means 7 days a week



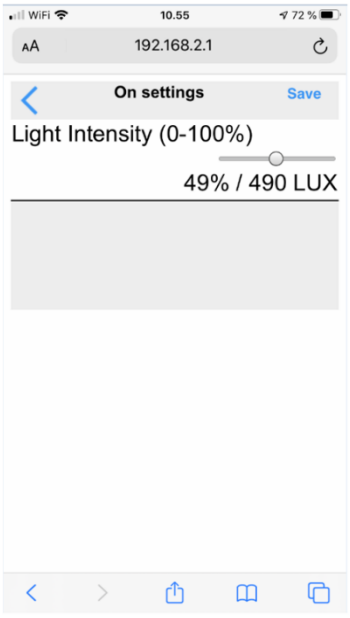
- **Light Output** : Select for which Light output line the event is valid

- **Action** : Select the type of event



  - **On** : Turn Light On
  - **Off** : Light Off
  - **LUX On/Off** : Light On/Off event for a given LUX value
  - **Sunrise** : Sunrise
  - **Sunset**: Sunset

- **Action settings**:
  - **On**: Select the **Light intensity** for the **On** event. In case LUX is enabled for the Light output line the LUX value associated the Light output line is shown



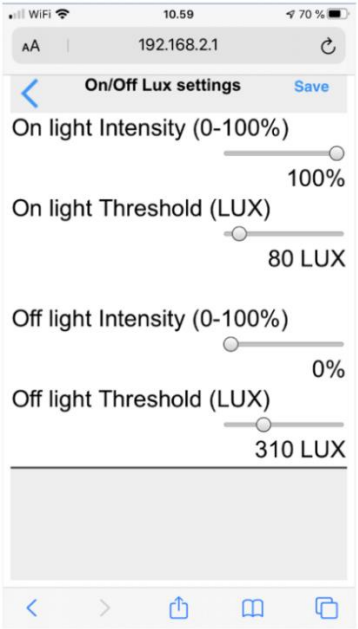
- **<u>LUX On/Off</u>**:

LUX On/Off can be used to switch light on/off for given LUX levels. During **LUX On/Off** the lights will have constant intensity and lux compensation will not happen.

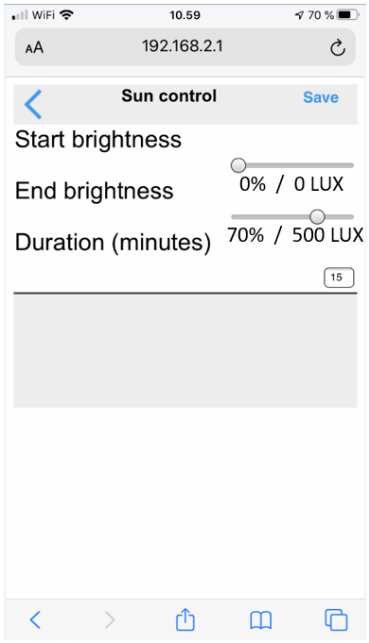
This function can be used for outdoor sensors where the lights are not influencing the measured lux level and where the outdoor lux level should define how lights are controlled.

For a special setting of the parameter **On Light Threshold** set to MAX value (=1000) the light will be forced always on with the intensity given by parameter **On light Intensity** and no lux compensation will happen. This behavior can be useful for light lines using indoor sensors but where there is a temporary need for having a constant intensity without lux compensation e.g. night light.

- **On light Intensity** : Light intensity set for Light output line when LUX level is below **On light Threshold**
- **Off light Intensity** : Light intensity set for Light output line when LUX level is above **Off light Threshold**
- In case **On light Threshold** is set to MAX value (=1000) then light will be permanent ON with **On light Intensity**

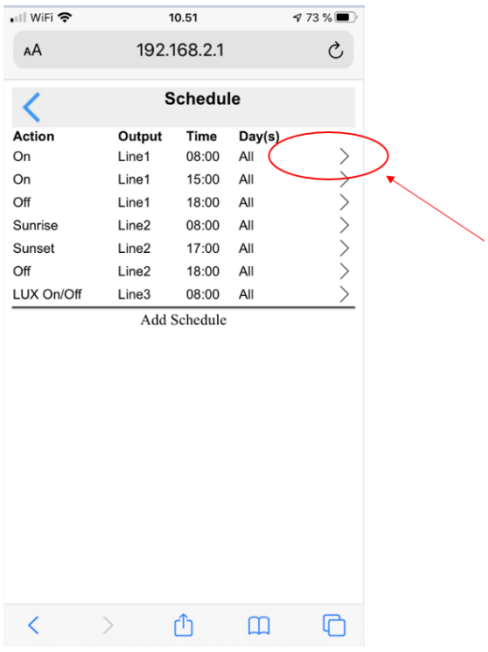


- **Sunrise/Sunset:**
  - **Start brightness:** Light intensity at event start
  - **End brightness:** Light intensity at event end
  - **Duration:** Duration of Sunrise/Sunset sequence in minutes



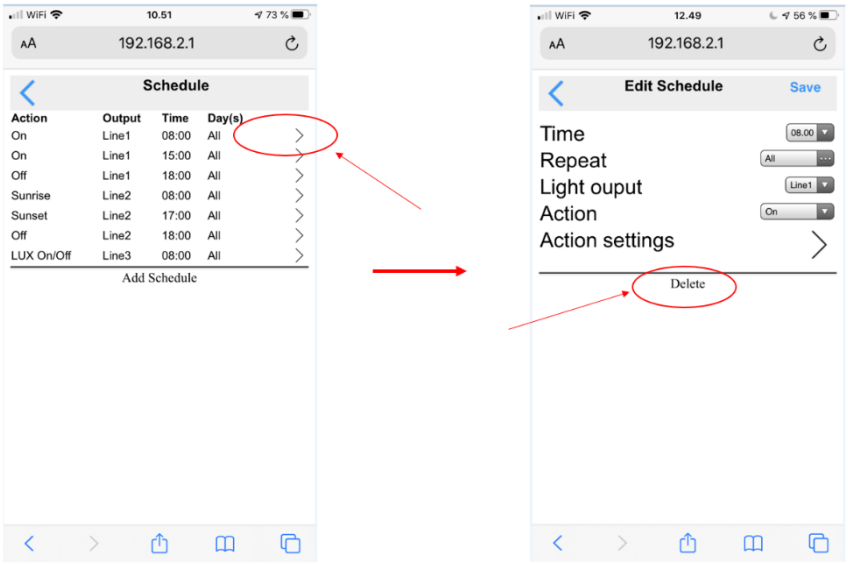
6.2 Edit Schedule event

To edit an existing schedule event please press the arrow for the event you want to edit. The event will open and same options are possible as explained in section **Add Schedule event**



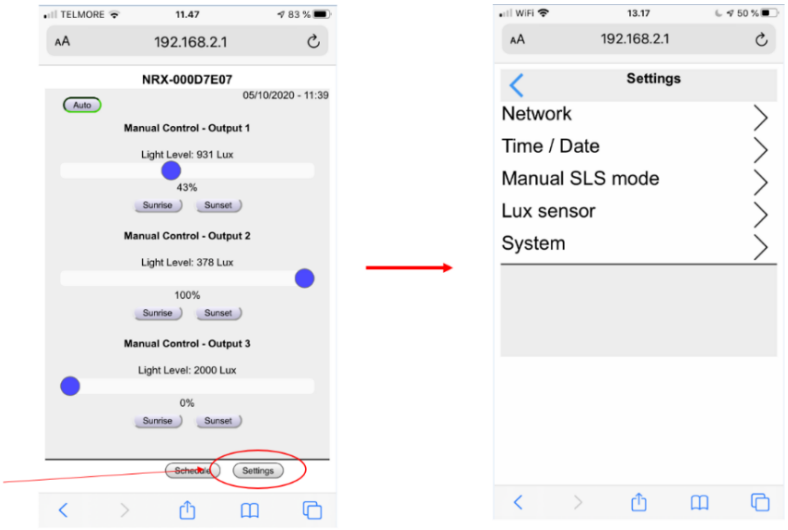
6.3 Delete Schedule event

To delete an existing schedule event please press the arrow for the event you want to delete. The event will open and then press **Delete**



7 Settings Menu

To go to the **Settings Menu** push the **Settings** button on main screen

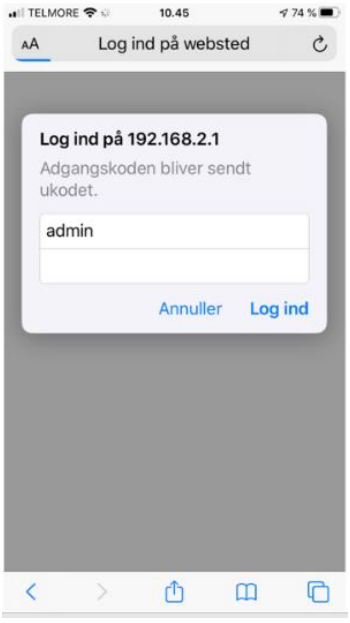


7.1 Network Menu

NRX5001 is default in **AP mode** (NRX5001 is Access Point) having default SSID and password listed on surface on NRX5001. In **Network Menu** it is possible to select between **AP mode** or **Client mode**:

- **AP mode**:
  - AP SSID: **System name**
  - AP password: **AP password**
- **Client mode**: Connect NRX5001 to another local WiFi network.
  - Wifi accesspoint SSID: **Accesspoint (SSID)**
  - WiFi accesspoint password: **WiFi key**
  - In **Client mode** it is important to allocate fixed IP on the WiFi router for the NRX5001 MAC address to be able to connect to the NRX5001 afterwards
- **Access control:** It is possible to set up an access password for NRX5001.
  - Access password: **User Password**

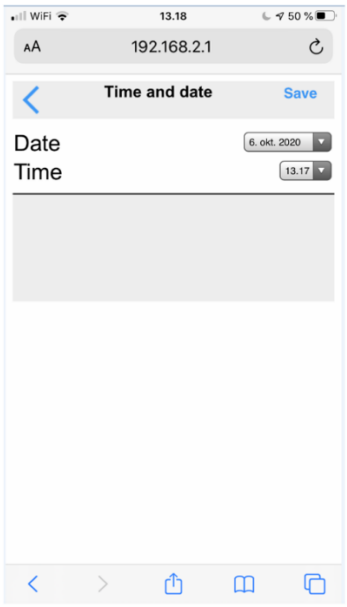
- In case access password is setup User will have to type this password to access NRX5001
- User access control is shown below
  - User: **admin** (can not be changed)
  - Access Password : **User Password**



- After doing change in Network Menu and pressing **Save** the system will re-start using new Network settings
- After **Factory Reset:**
  - NRX5001 is in **AP mode** having default SSID and password listed on surface on NRX5001
  - Access control password is disabled

7.2 Time/Date Menu

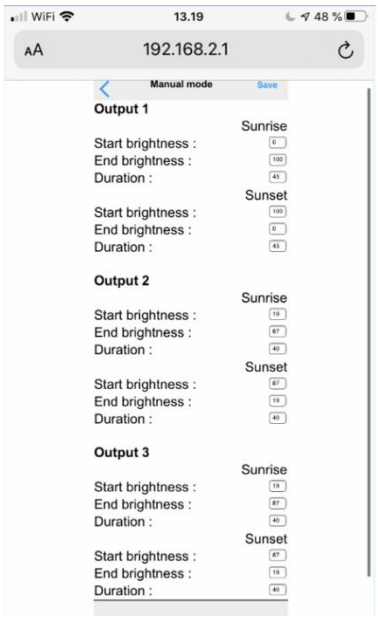
In **Time/Date Menu** it is possible to set the Date and Time for NRX5001. After pressing **Save** the system time will be updated according to settings.

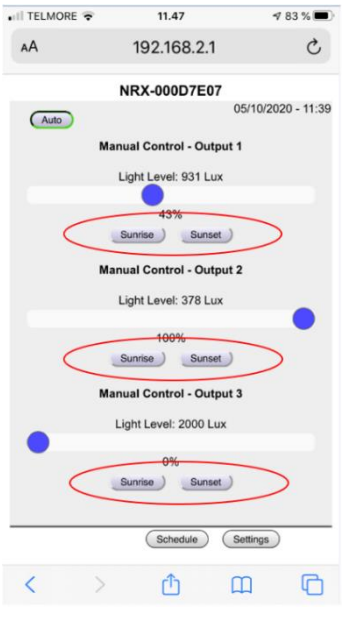


Note: In case of power loss, the time information will be maintained for minimum 2 hours by NRX5001

7.3 Manual SLS Menu

In **Manual SLS Menu** it is possible to configure sunrise and sunset setting **Start brightness**, **End Brightness** and **Duration** for each Light output line for the **Manual Mode.** These settings are used running **Manual Mode** and when activating **Sunrise/Sunset** manually from **Main Screen**

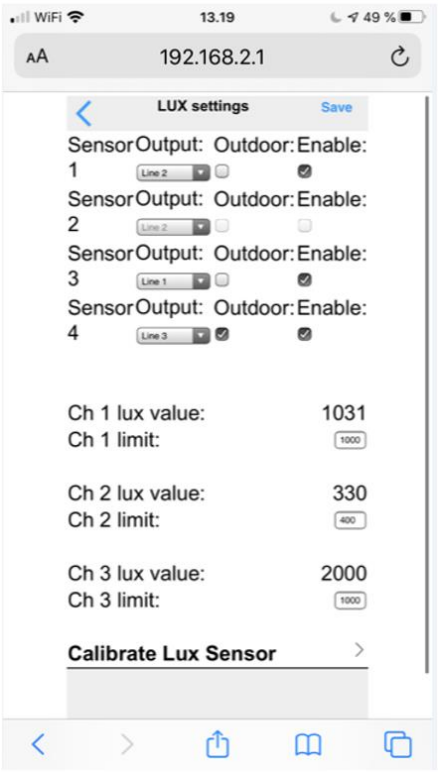




7.4 LUX sensor Menu

In **LUX sensor Menu** it is possible to configure LUX sensors. In total up to 4 LUX sensors can be active for NRX5001

- **Sensor**: Define Sensor ID 1..4 – On the LUX Sensor Box you will find the Sensor ID number
- **Output**: Define to which Light output line the LUX Sensor will be allocated. It is possible to have more LUX sensors active for one Light output line. It is also possible to have one sensor active for more Light output lines, however this option is not recommended for indoor sensors.
- **Outdoor**: Set this option in case the LUX sensor is placed outside the building. If LUX sensor is placed outside the building it will not be calibrated as it runs as a twilight sensor not influenced by light inside the building
- **Enable**: Enable/Disable LUX sensor
- **Ch 1 lux value:** If Lux sensors are configured and enabled for Light output line 1 then **lux value** will indicate current LUX value – other vice no value shown
- **Ch 1 limit:** Holds the max. LUX value defined for Light output line 1. Depending on physical Sensor placement LUX sensors might absorb light intensity different meaning the measured LUX value might be different from one sensor placement to another. **Ch 1 limit** determine the MAX LUX value the sensors associated Light output line1 can measure when intensity for Light output line1 is 100% with no or limited incoming light from outside the building. It is possible to set this value manually but please be aware that when doing a LUX calibration this value will be overwritten by NRX5001 based on calibration result. It is advised not to set this value manually but let it be configured from calibration result to ensure optimal performance of the system
- **Ch 2 lux value, Ch 3 lux value** : same as explained for **Ch 1 lux value** just Light output line 2 and 3
- **Ch 2 limit, Ch 3 limit** : same as explained for **Ch 1 limit** just Light output line 2 and 3



7.4.1 Calibrate LUX Sensor

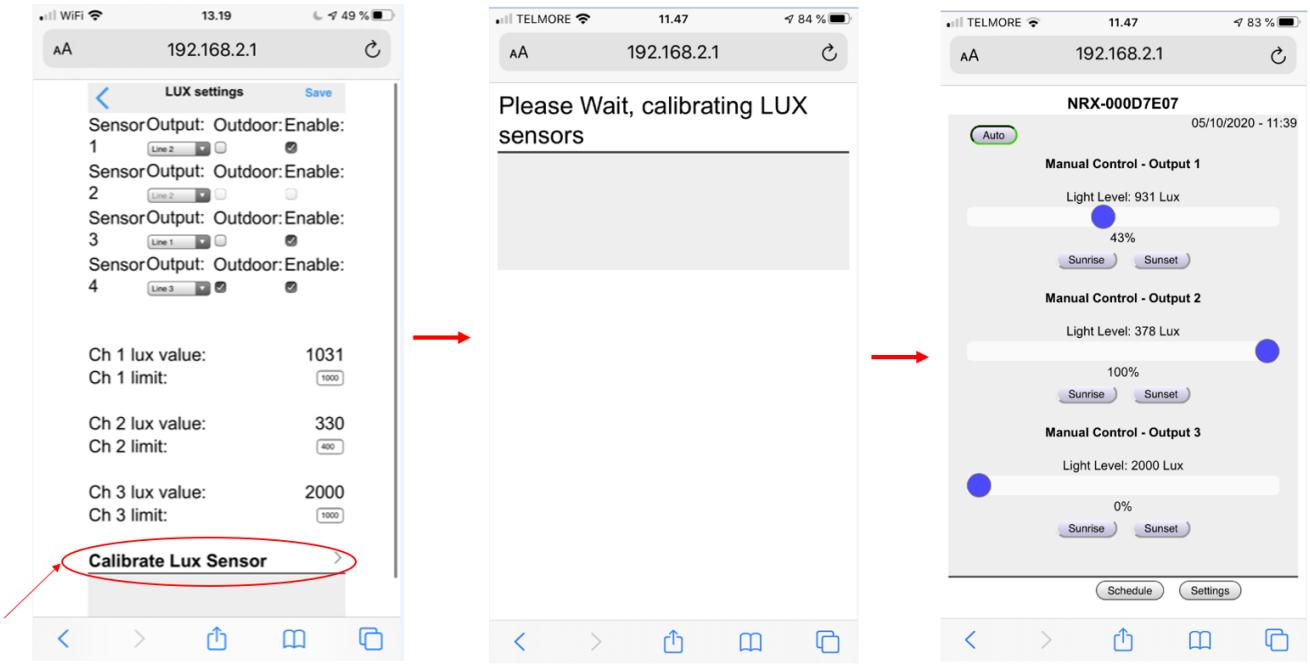
If changes are done to the LUX settings it is recommended to run a LUX calibration to ensure optimal performance of the system.

LUX calibration can be done in two different modes.

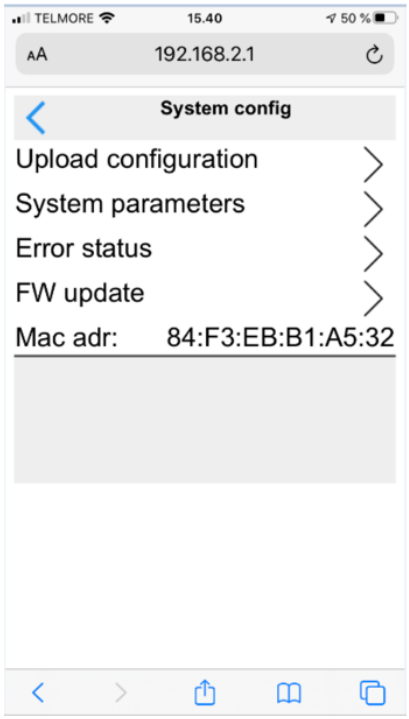
- **Single:** Each Light output Line is calibrated separately:
  - Intensity for other Light output lines are set to 0%
  - Calibration will run for each output line for ~15sec
    - In case Light output lines has no LUX sensors or LUX sensors are placed outside building the calibration for this Light output line will be skipped
- **Full:** All Light output Line is calibrated at same time:
  - Calibration will run for all output line for ~20sec
    - In case Light output lines has no LUX sensors or LUX sensors are placed outside building the calibration for this Light output line will be skipped
- Default calibration mode is **Single.** To change it see **Settings Menu/System Menu/System Parameters**

After LUX calibration is completed NRX5001 will return to **Main Screen.**

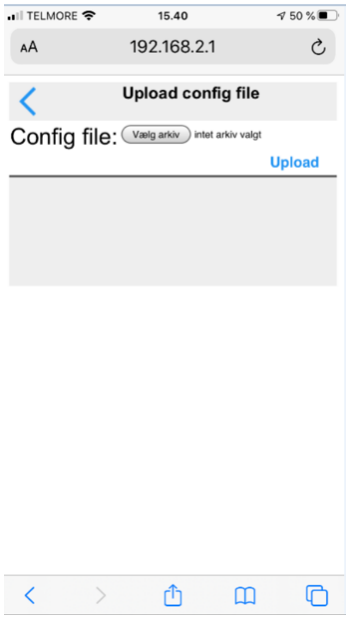
To have optimal calibration it is recommended to run the LUX calibration when there is limited incoming light from outside the building like early morning or late afternoon.



7.5 System Menu



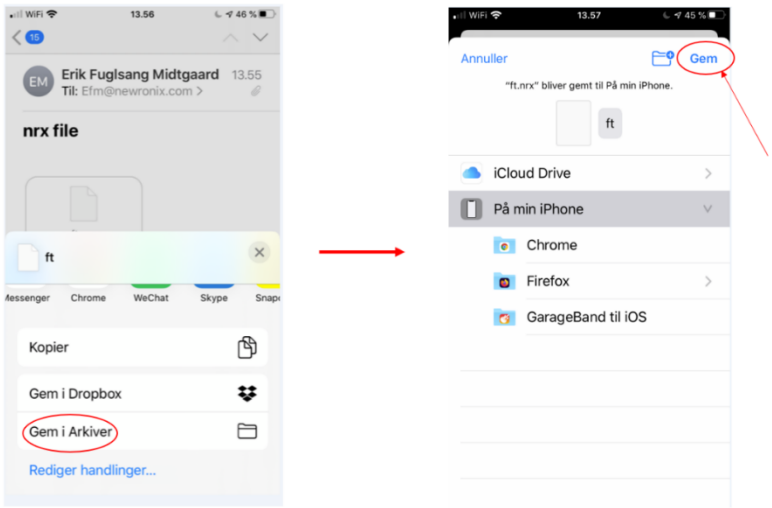
7.5.1 Upload configuration Menu



In **Upload configuration Menu** it is possible to upload a new configuration file to NRX5001. After upload the file is stored inside NRX5001. To activate it this is done by performing a **Factory Reset** of NRX5001 and follow the **Quick Setup** procedure. During the **Quick Setup** the new configuration file will now be available in the drop down menu for configuration.

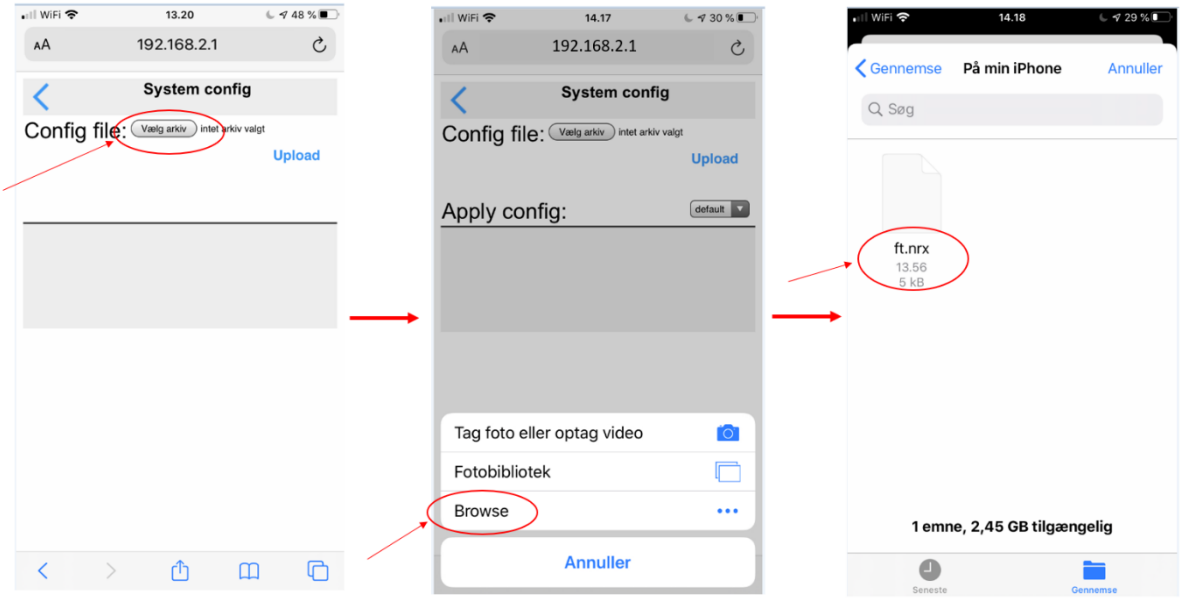
As an example here follows the procedure to download a configuration file to NRX5001 using an iphone after receiving a configuration file in an email:

1. Store the received configuration file (in this example named ft.nrx) on your iphone

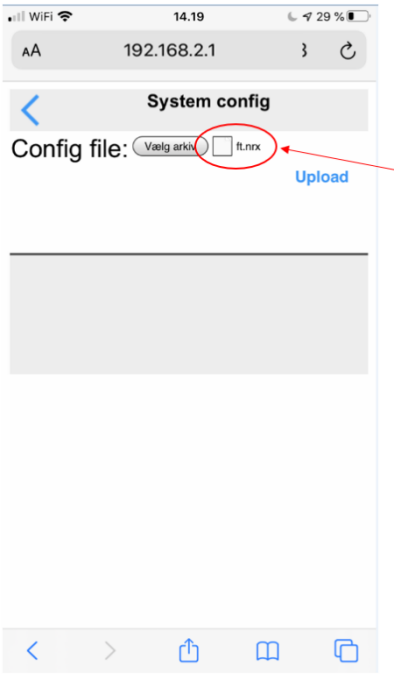


In **Upload config Menu** select **select archive**

2. Select **Browse** and go to the downloaded configuration file and select it (ft.nrx)

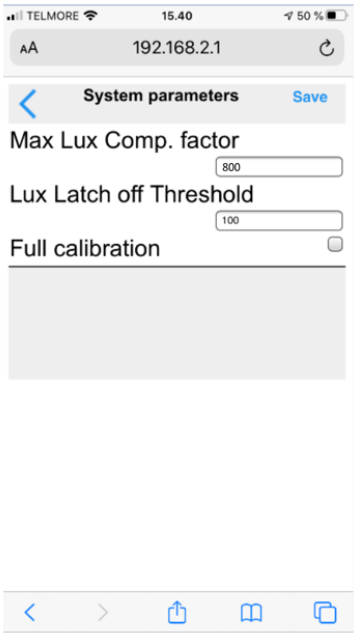


3. The file name of the configuration file will now be visible in **Upload config Menu**
4. Press **Upload** and the configuration file will now be uploaded and be stored inside NRX5001



7.5.2 System Parameters

In **System Parameters Menu** it is possible to set system related parameters. However it is recommended not to change those values from the defaults values



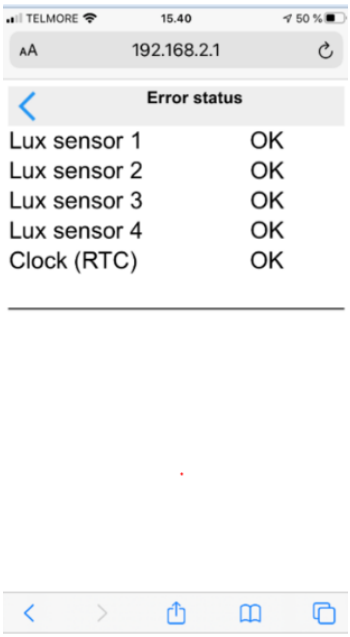
- **Max Lux Comp. factor**: Define the compensation factor that the Light intensity can be reduced based on incoming light level.
    - Value can be between 1..1000 (max compensation).
    - Default value: 800 - compensate down to 10% light intensity
        - 900 - compensate down to 5% light intensity
        - 990 - compensate down to 1% light intensity
- **Lux Latch Off Threshold**: In case Light intensity is compensated to the maximum value due to incoming light, then an offset of actual light level vs. wanted light level is calculated. In case offset > **Lux Latch. Off Threshold** light will switch off. Value is a percent value.
    - Value can be between 0 (no offset required) and 99 (max offset required) – in case value is 100 then light will never switch off due to this criteria
    - Default value: 100
- **Full calibration:** LUX calibration can be done in two different modes.
    - **Single:** Each Light output Line is calibrated separately
    - **Full:** All Light output Line is calibrated at same time
    - Default is “no checked” = **Single**

7.5.3 Error Status Menu

In case there is a system error detected in NRX5001 the **Reset button** will flash with red led – 2 sec blink period. Error type can be read out in menu **Error Status Menu**.

- **OK** : No error
- **NOT OK** : Error
- **“ “** : LUX Sensor is not in use

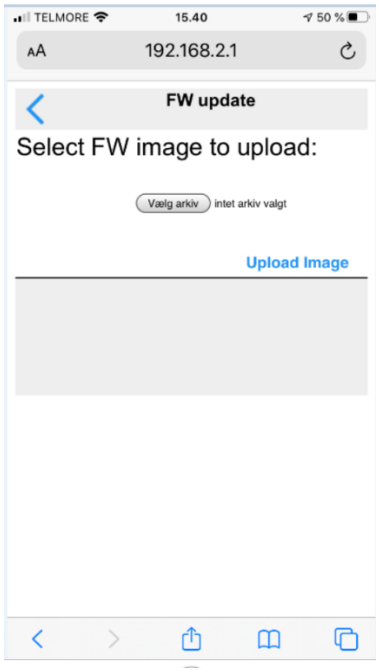
In case of an error the status will show **NOT OK**. When the error is fixed (see section : **System error and recovery**) the status will change to **OK**.



7.5.4 FW update Menu

In **FW update Menu** it is possible to upload a new FW version to NRX5001. After upload the file is stored inside NRX5001 and the system will automatically restart.

A FW update will be provided from NewRoniX in case it is required.



8 Reset

You can reset NRX5001 from the following steps:

- Press the Reset button
- The button will flash with red led – 1 sec blink period
- Keep the button pressed for min. 3 blinks and then release it
- NRX5001 will now perform a re-start with existing settings
- The light will start up in the correct mode based on the actual time and according to the content in the schedule menu as if no reset had happened

- Please note if you keep the reset button pressed too long it will end up in a **Factory Reset**
-

9 Factory Reset

If you want to bring system back to factory settings then do the following steps:

- Press the Reset button
- The button will flash with red led – 1 sec blink period
- Keep the button pressed until led light stops blinking and the led turns off (after ~15 seconds) – then release the button
- NRX5001 will now perform a re-start with factory settings
- The light will start up with 50% intensity
- Now go to section **Quick setup** to setup system again

10 System error and recovery

- In case there is a system error detected in NRX5001 the Reset button will flash with red led – 2 sec blink period
- It is possible to read out error type from Menu: **Error Status Menu**
- Type of errors:
    - LUX sensor reading error
    - Lost Time/Date due to power loss
- When an error has been fixed the Reset button will stop flashing

1. LUX sensor reading error

Indicators:

- Reset button will flash with red led – 2 sec blink period
- LUX value for Light output lines using mal function LUX sensors will have LUX value -1 visible on **Main** Screen
- **Error Status Menu** will show mal function LUX sensor as **NOT OK**

Please check Sensor cable connection:

How to correct it:

- Go to **Settings Menu / LUX settings Menu** and check LUX sensors are setup as expected
    - If not then correct the settings
- Assuming settings are correct, then check cables and connections
    - In case it is Sensor or Cable issue and it is not possible to correct it then disable LUX sensor in **Settings Menu / LUX settings Menu**
    - In case LUX sensors is disabled then NRX5001 will continue controlling Light output line but with LUX compensation is disabled – schedule will continue as before

2. Time/Date lost error

Indicators:

- Reset button will flash with red led – 2 sec blink period
- Time/Date on **Main Screen** will be wrong

- Schedule events will run on unexpected times
- **Error Status Menu** will show Clock(RTC) as **NOT OK**

How to correct it:

- Go to **Settings Menu / Time/Date Menu** and set Time and Date

3. Not possible to connect to NRX5001

Indicators:

- Connecting to NRX5001 is not possible
    - You might have changed the password and forgot it?
    - You might have configured client mode and entered wrong SSID/password ?

How to correct it:

- If no change were made to SSID/password that can explain no connection, then **Reset** NRX5001
- If change were made to SSID/password that can explain no connection, then perform a **Factory Reset** of NRX5001 to restore SSID/password to default values and then do a **Quick Setup**

4. Light is not updated as expected

Indicators:

- Light is not changing as expected nor following the expected schedule

How to correct it:

- Connect to NRX5001 and check if mode is **Manual Mode** (**Auto** button is red)
    - In case it is in **Manual Mode** the press **Auto** button and **Auto** button will turn back to green and issue is fixed
- If system is in **Auto Mode** check if Time is correct