OASIS

User Manual

Versions 4.4x-4.5x

OASIS
proffesional internet enabled controller for single irrigation-head

The **OASIS** is the next generation of stand-alone irrigation controllers.

The **OASIS** is an **internet enabled controller**, it allows the user to control everything from everywhere via the internet on any platform (Windows, Linux, Android, iOS…)

The **OASIS** offers control of remote valves/meters through **radio communicated RTUs** (RF RTU). This allows controlling small to medium size projects without having any wires in the field.

Outputs:

- The modular structure enables 4,8,12 or 16 outputs
- Outputs can be activated locally by the controller or remotely through RF RTUs
- 0 or 1 main valve
- 0 or 1 fertilizer injector
- Irrigation valves – as many as available outputs
- 0 to 9 Filter stations

Digital Inputs:

- Standard inputs - Water meter, fertilizer meter, Pressure sensor, Differential pressure sensor
- Inputs can be read locally by the controller or remotely through RF RTUs
- Optionally 1 input can be converted into a Start Contact

Analog Inputs:

- Optionally 2 analog inputs can be connected

Irrigation:

- Water dosage by time or by volume
- Irrigation days can be set per days of the week or cycle of days
- Irrigation can be repeated in multiple cycles per day
- Start of programs:- by time, by start contact or manually
- Irrigating valve by valve or groups of valves
- Main valve operation:- delayed, advanced, or together with the irrigation valves

Fertilization:

- Fertilizer dosage by time or by volume
- Injecting fertilizer continuously or proportionally
- Proportional fertilization modes: time/time; volume/volume; time/volume, volume/time
- Three stage fertigation: pre- watering, injection, post watering

Back-flush:

- Flushing by time, by PD or by both
- Definable parameters: Flushing interval, Dwell time, Flushing time
- Endless looping detection and prevention
- Accumulation of flushing cycles

Alarms:

- Alarm notification by E-mail messages about the followings:
  - High flow, Low flow, Water leakage, Low pressure
  - Fertilizer leakage, No fertilizer pulses
  - Endless backflush looping due to DP sensor failure
  - Low battery

Communication:

- GPRS modem allows complete control from everywhere via Internet.

RF RTU (remote radio unit):

- License free
- Up to 16 RTU
- Range up to 2.5 km
- RTUs are modular 2,4,6 or 8 outputs and 0 or 4 inputs.

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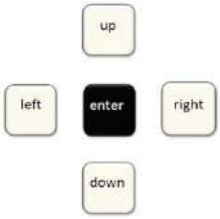
Computing & Control Ltd.

TABLE OF CONTENT

1. How to use the Keyboard?

The **OASIS** is equipped with a keyboard of 5 buttons serving both the data insertion and the movement between screens. The black key in the middle, known as the ENTER key, is used for switching between the two operation modes and for confirming the inserted values. The other 4 keys known as the ARROW KEYS, change their functionality between the two operation modes. During the data insertion mode which is indicated by a blinking cursor, the vertical arrow keys, are used for changing the value underneath the cursor, and the horizontal arrow keys enable the movement of the cursor between the digits. The ENTER key serves also for movement to the next editable field on the screen. After passing the last editable field, the cursor disappears from the screen indicating the end of the data insertion mode. At this stage the 4 arrow keys can be used for movement between screens.



2. The Menu

The subjects included in the controller are displayed as a series of vertical screens constituting the Menue. While being in the data display mode (outside of data insertion mode) the Menu can be reached from any screen by moving repeatedly to the left (using the left arrow key) until arriving to the screen called IRRIGATION. From this point all other subjects of the Menu can be reached by using the vertical arrows. When the desired subject is reached, use the right arrow key to move into the list of screens belonging to the selected subject.

The subjects included in the Menu are as follows:

- IRRIGATION
- ACCUMULATORS
- CONSTANTS
- FLUSHING (available only when the configuration contains a filter)
- CONFIGURATION
- RADIO (available only when the radio unit existence is recognized).
- NETWORK DATA (available only when the modem existence is recognized)

3. System Configuration

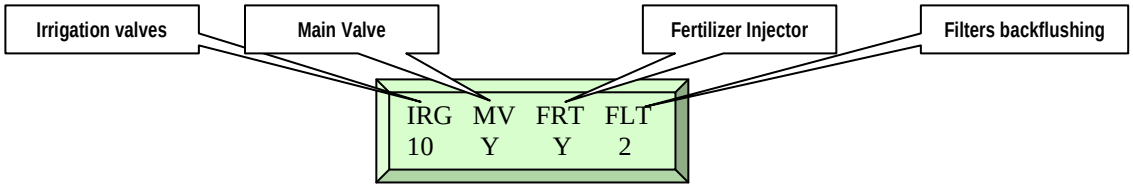
The existing configuration can be inspected any time, but introducing changes will not be permitted while irrigation is in progress. Entering the configuration without a password permits inspection only, however for making changes a password is required. The password is 139; it is not kept as a secret because it is only meant to avoid unintentional changes.

OUTPUTS USED - The number of outputs used out of the total number available in the system (4, 8, 12 or 16) which depends on the actual model.

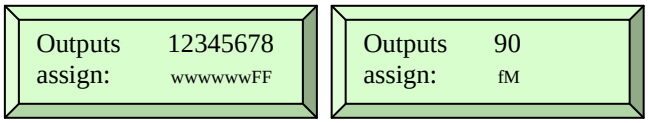
Defined outputs number: 14 (of 16)

The way the outputs are going to be allocated for use is defined as follows: first specifying the number of valves to be used for Irrigation, then defining by Y/N whether a Main-Valve (or a pump start) is going to be used, then defining whether or not a Fertilizer Injector is going to be used, again by Y/N and finally the number of outputs to be used for filters backflushing is defined.

The following drawing shows the outputs allocation screen:



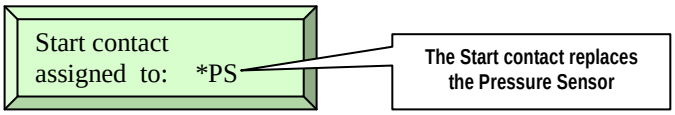
In the above example the system to be controlled contains 10 Irrigation valves, 1 Main Valve (or pump start), 1 Fertilizer Injector and two Filters backflushing valves.
The result of the outputs allocation is displayed at the screens to the right that show the outputs assignment map, the upper row indicates the position and the bottom row indicates the device allocated to each position. The devices are abbreviated as follows:
W-irrigation valve ; **F**-filter valve; **f**-fertilizer injector; **M**-main-valve .
The position of each output defines the location on the terminal board at which the specific device should be connected.



INPUTS- All models of the **OASIS** have 4 inputs. By default the 4 inputs are allocated as follows:

- Input 1 - Water Meter WM
- Input 2 - Fertilizer Meter FM
- Input 3 - Pressure Sensor PS
- Input 4 - Differential Pressure sensor DP

Optionally any of the four inputs can be used for connection of a “Start Contact” instead of its default allocation. The selected input will no longer serve it's original function, but instead each time the contact is closed it will trigger the start of the program of valve 1. This feature can be used for irrigating by Tensiometer.



4. System Constants

The definition of the system constant parameters consist of the following steps:

- **Time settings** – including current time, machine cycle and current day
- **Irrigation mode** – selecting irrigation mode per valve by time ‘**t**’, or by volume ‘**v**’
- **Irrigation time units** – selecting ‘**hour:min**’ or ‘**min:sec**’ to be used for dosing by time.
- **Reset time** – the time at which all programs are forced to stop
- **Fertilization mode** – dosing by time or by volume, injecting continuously or proportionally
- **Reaction to fertilizer failure** – continue without fert., or stop irrigating the problematic valve

- **Fertilizer pulse length** – used for time based proportional fertigation
- **Main valve's operation** – delayed, advanced or simultaneous with the irrigation valves
- **Main valve's delay** – specifying the delay when delayed or advanced operation is selected
- **Water meter's ratio** – the volume represented by each pulse of the water meter
- **Fert. meter's ratio** – the volume represented by each pulse of the fert. meter
- **Burst limit** – the number of illegal pulses defining a water or fertilizer leakage problem
- **Flow tolerance default** – the ±% of the nominal flow to be used for the high-flow/low-flow limits
- **Flow control parameters** – nominal flow, high-flow and low-flow per valve
- **Line filling delay** – expressed in minutes, defined per each valve individually
- **Cycles per day** – enabling or disabling
- **Cycles interval units** – '**hour:min**' or '**min:sec**' to be used when cycles per day are enabled
- **Low flow reaction delay** –minutes of delay from detection to reaction in case of low flow.
- **High flow reaction delay –** minutes of delay from detection to reaction in case of low flow.
- **No water pulse reaction delay –** minutes of delay from detection to reaction in case of no water pulse
- **Combined mode** – enabling to combine valves to let them work together
- **Reaction on burst or high flow** –
    - Close valve – but continue with the next in sequence
    - Stop program – without continuing the sequence
    - Stop+ Disable – stop the sequence and disable the problematic valve
    - Disable valve – do not let the problematic valve irrigate until released
- **Flow control during time based irrigation** – enabling or disabling

5. Network data

This subject will only be accessible if the existence of a modem is recognizes in the system.

The Network data subject deals with the internet communication and it consists of the followings:

- **Network Status** – indicates the status of communication with the server:
    - CONNECTING - during the process of trying to get access to the network
    - CONNECTED - while connected to the network
- **DEVICE ID** (8 digits) the unique Identification number of the unit, depends on the modem in use.
- **APN** (Access Point Name) is crucial for getting access, depends on the cellular SIM card provider.
- **Server Name/IP address** - **talgil3.no-ip.org** is the IP address by which the communication server is accessed. (appears as default)
- **Server Port** - 55300
- **Username** (As required by the cellular provider, usually blank)
- **Password** (As required by the cellular provider, usually blank)
- **Dealer name** – when The Dealer's user name is inserted, than at the first login of the unit into the server it will be registered under the specified dealers account and only then would the dealer be able to license the end user access to the unit (through the Spot Admin software). Failing the enter the Dealer's name will require the assistance of Talgil personnel for the licensing.

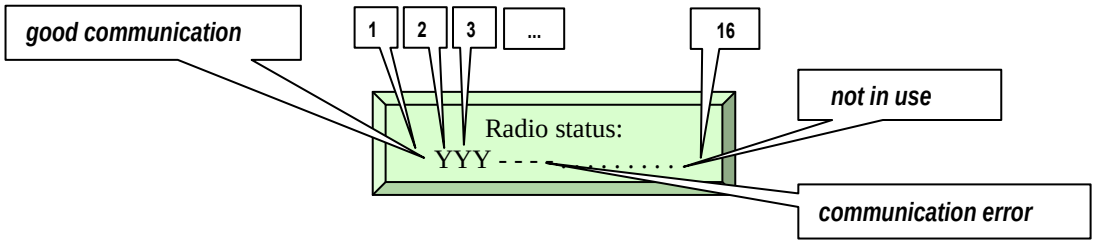
6. Radio (RTU)

This subject will only be accessible if the existence of an RF UNIT is recognizes in the system.

The subject deals with all that is involved with defining and using RF RTUs for accessing remote valves/ meters.

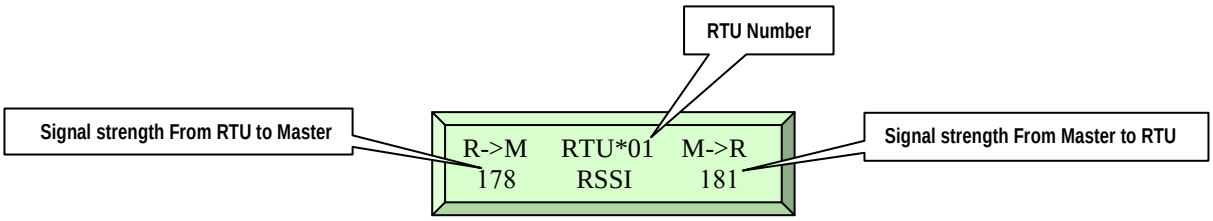
- **RTU units communication status**:
  This screen displays the radio communication status of all the RTUs in use. The screen always shows 16 positions (the maximum number of RTUs that can be used in the system).

  "Y" – indicates RTU with good communication.
  "-" - indicates RTU with no communication.
  "." - indicates RTU not in use.



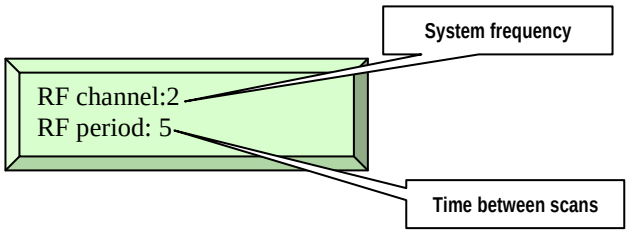
- **RSSI – Received Signal Strength Indication**

  This screen shows the signal strength between RTU to MASTER and from the MASTER to RTU (Scroll up/down to move between the RTU units)



- **Setting the Frequency and Scanning period**

  This screen shows the system frequency (from 1 to 16) and time between scanning cycles (5 or 10 Sec)

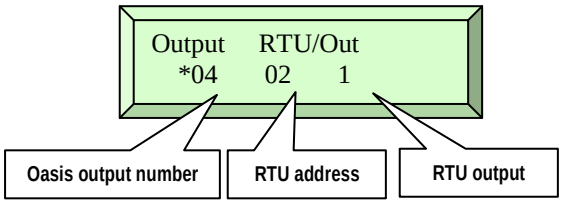


- **Remote outputs definition**

  Remote outputs are those that are located far from the controller and are activated through RTU units by radio communication. The current screen is used for defining/observing to which RTU and which output of that RTU the remote outputs are connected. (RTU addresses can go between 1 to 16, and the RTU outputs between 1 to 8).

  In the following example output No 4 is physically connected to output 1 of RTU 2.

  The Oasis activates simultaneously both the local output (No 4) and the remote one (out 1 of RTU 2)

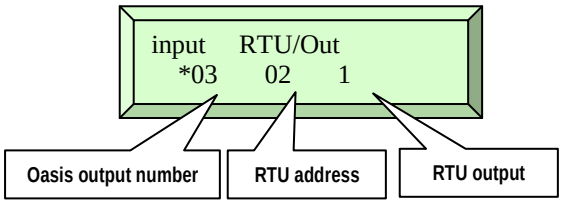


- **Remote Inputs definition**

  Remote inputs are those that are located far from the controller and cannot be directly read by the controller. Those inputs can be read through RTU units by radio communication. The current screen is used for defining/observing to which RTU and which input of that RTU the remote inputs are connected. (RTU addresses can go between 1 to 16, and the RTU inputs between 1 to 4).

  In the following example input No 3 is physically connected to input 1 of RTU 2.

  An input that is defined as remote input, cancels the local input of the same number. In the example below input 3 exists only as a remote input and the local input 3 is ignored by the Oasis.



More detailed description of the radio communication and RTU units may be found in a separate manual.

7. Irrigation

Under the title of IRRIGATION there are all the screens that enable defining, activating and inspecting the operation of irrigation/fertigation programs, utilizing the following screens:

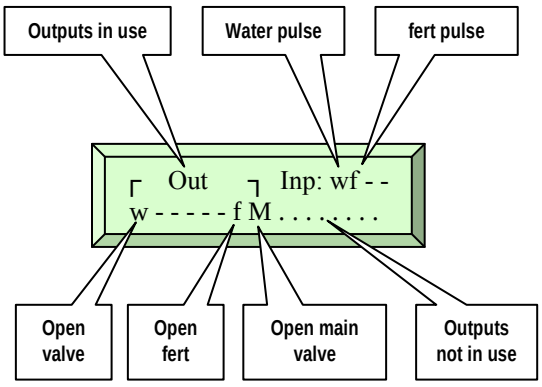
- The status of outputs, and inputs screen
- The water and fertilizer flow display (use the vertical arrows at the outputs/inputs status screen)
- The Irrigation control screen
- The water budget screen (defines the multiplication factor in % that multiplies the dosage)
- The water dosage screen
- The fertilizer dosage screen (appears only when the configuration includes fertilizer injection)
- Water before and water after fertilization (appears only when the configuration includes fertilizer injection)
- Cycles per day definition screen (appears only when cycles per day were enabled during constants definition)
- Interval between cycles definition screen (appears only when cycles per day were enabled)
- The starting mode definition screen
- The "Days Cycle" definition screen
- The "Run-List" definition screen
- Disabling/Enabling valves
- Combining valves to the program (appears only when combined mode is enabled)

The **OASIS**, enables irrigating one valve at a time. In those cases when it is required to irrigate several valves together it can be done by using the "combined" mode. This is the only way that more than one irrigation valve can be opened at the same time. In the "combined" mode the accumulation will be counted to the leading valve only.

The **OASIS** enables defining one program per valve. Programs can be started manually, by time, or chained to work sequentially one after the other. If a program is started while another program is already running, the new program will wait until the other program finishes.

When a **start contact** is defined in the system, it is the program of valve No. 1 that will be started each time the contact is closed.

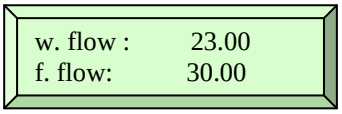
7.1. Statuses of Outputs/Inputs



OUTPUTS	INPUTS
w – irrig. valve	w – water pulse
f – fert. injector	f – fert pulse
F – Filter flushing	P – pressure
M- Main valve	D – DP sensor

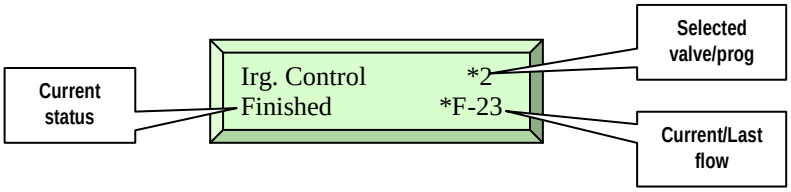
7.2. Water and fertilizer flow display

The flow of the water and fertilizer meters screen can be reached from the Outputs/Inputs status screen by use of the vertical arrows.



7.3. Irrigation control

The irrigation control screen enables viewing/changing the current status of a selected valve/program and inspecting their Current/Last flow. The Irrigation control screen follows the Outputs/Inputs status screen to the right.



Hitting the ENTER key changes the field of Current/Last flow into a command field by which the status of the valve/program can be changed and the system can be **Freezed**/**Released**.

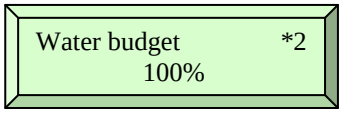
In case the status indicates a fault, there will be a **Clear** fault option.

When the **Start** command is selected there are two options:

- to start a **Prog** – means that the sequence of valves defined to follow the selected valve will follow upon termination of the selected valve.
- to start **Alone** – means to start the selected valve alone without the sequence of valves defined to follow it.

7.4. Water budget

The water budget is defined in percents and is used as a multiplication factor that changes the water dosage of the selected valve in the range of 1-200 %.



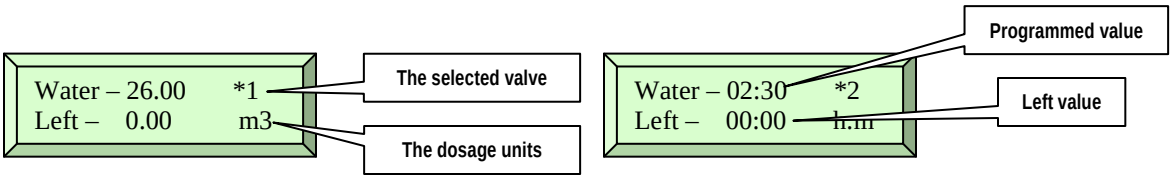
The default of 100% means – use the defined dosage as is.

7.5. Preparing Irrigation Programs

An irrigation program definition starts with defining the water dosage. The water dosage defines the amount of water to be irrigated each time the program (or a cycle) is started. The water dosage is multiplied by the water budget.

7.5.1. Setting the Water Dosage

The water dosage can be volumetric or time based, depending on the selection made for the specific valve at the CONSTANTS, in the “irrigation mode” screen. A valve marked by “V” will irrigate by volume and if marked by “t” will irrigate by time.

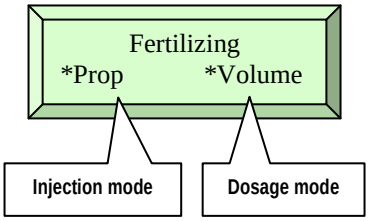


Select the desired valve by using the vertical arrows. Push the ENTER key to get into edit mode (indicated by the blinking cursor). Set the desired water dosage next to the word ‘**Water**’ and push the ENTER key to confirm. The cursor moves next to the field ‘**Left**’. During irrigation this field shows the quantity left to be irrigated and it can be changed when needed. Inserting a nonzero value in this field before start of irrigation, will cause the next irrigation to supply the left quantity instead of the programmed dosage, this therefore is the way to make a single time change.

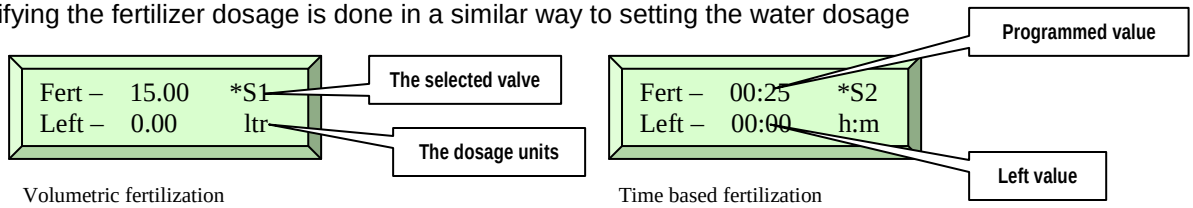
7.5.2. Setting the Fertilizer Dosage

The fertilizer dosage mode and the mode of injection are selected during the CONSTANTS definition.

The “Fertilization mode” screen is shown to the right. The injection mode can be proportional or bulk, the dosage mode can be volumetric or time based, all combinations are allowed. In the proportional injection mode, the specified fertilizer quantity will be injected in pulses with a rate proportional to the water flow, in such a way that the specified amount of fertilizer will be fully supplied when reaching the “water after” stage, or when completing the water dosage. Bulk injection means continuously injecting all the specified amount of fertilizer.



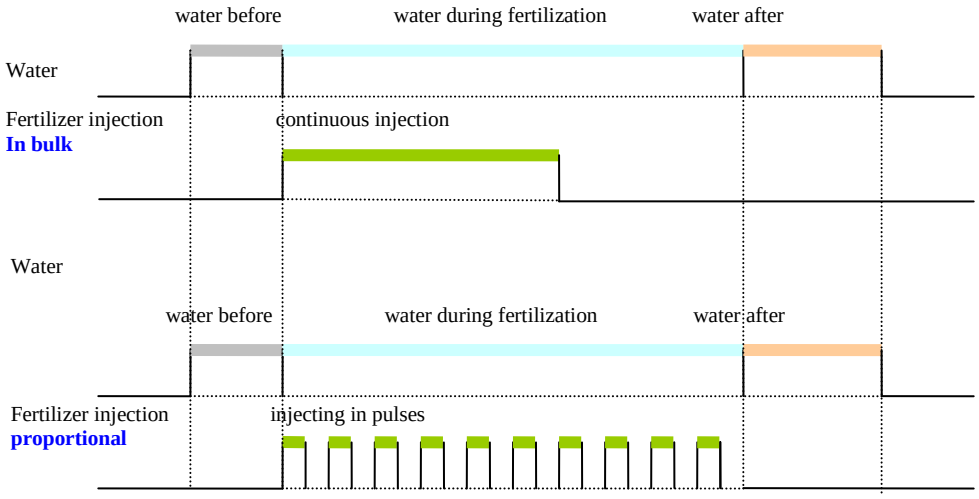
Specifying the fertilizer dosage is done in a similar way to setting the water dosage



Volumetric fertilization

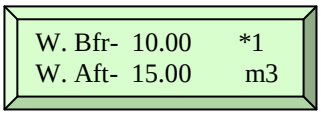
Time based fertilization

The following drawing shows the difference between bulk and proportional injection modes:



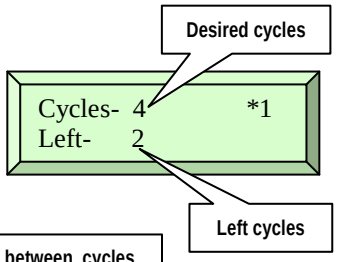
7.5.3. Setting Water Before and After Fertilization

Water before and water after fertilization are set as shown at the screen to the right, the units will be the same as selected for irrigation dosage.

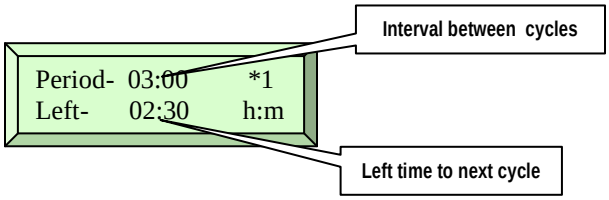


7.5.4. Setting Cycles Per Day

When the irrigation has to be repeated several times a day, the numbers of cycles and the interval between the cycles have to be specified. The option of using this feature must first be enabled at the CONSTANTS definition, otherwise the screens will not appear.



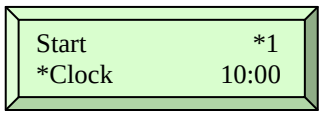
The time units for specifying the period between cycles and the left time until next cycle are selected at the CONSTANTS.



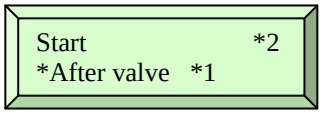
Notice that the amount of water as specified in the water dosage screen, will be supplied per each cycle and not divided between the cycles.

7.5.5. Setting The Starting Mode

A program can be set to start by "**Clock"** at a specified time or "**After valve"** termination. Programs are allowed to work one after the other in an endless ring, in fact a program can be set to start after itself.



Valve 1 start at 10:00



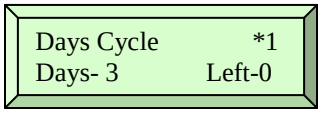
Valve 2 start after valve 1

Notice that setting the starting mode does not guaranty the program start, the days of irrigation must also be specified either by defining the "**Days Cycle**" or by the "**Run-List**". Notice also that when the selected starting mode is "**After valve**" the only way to specify the irrigation days is by "**Run-List**"

7.5.6. Setting The Irrigation Days

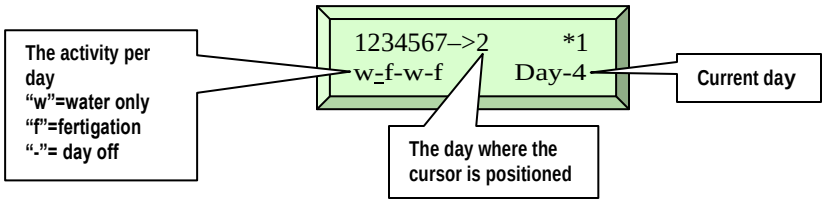
There are two ways for setting the irrigation days:

If the irrigation has to be repeated in a constant interval of days, the preferred way to define the irrigation days will be by using the "**Days Cycle**" definition.



In the example above the irrigation will be repeated every 3 days. The "**Left**" number of days indicates how many days are left until next cycle of irrigation. Each day at midnight this value is decremented until reaching "0" which means that irrigation will take place on the current day. When the irrigation starts, the "**Left**" value is reloaded with the programmed cycle of days which in our example is 3.

When the irrigation days cannot be specified with a constant interval of days, or when fertigation is required on particular days only, there is an option to define the daily activity by use of a "**Run-List**".



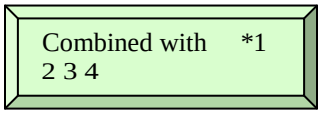
Use the ENTER key to get into edit mode, then use the horizontal arrows to move between days and use the vertical arrows for changing the setting per day.

The length of the "**Run-List**" is determined by setting the parameter "**Cycle**" at the "Time settings" screen, during the CONSTANTS definition.

Notice that the "**Run-List**" will only be available if the programmed "**Days Cycle**" is set to "0".

7.5.7. Combining Valves for Working Together

A program defined for a certain valve may actually activate a combination of valves which will act as one. However the accumulation will be considered to the leading valve only.

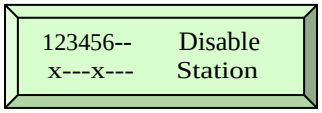


In the example above the leading valve is valve 1 and it is combined with valves 2, 3 and 4.

Notice that the flow control mechanism takes into consideration that the expected flow is not of a single valve running alone, but of the combination of valves running together.

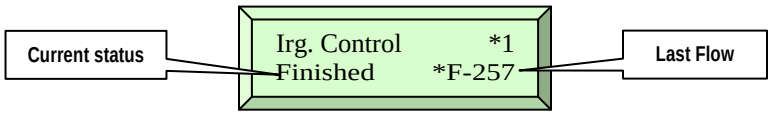
7.5.8. Disabling the operation of valves

If for some reason the operation of some valves should temporarily be disabled (without their programs to be changed), the following screen can be used. The programs of the valves marked by an X will not be activated.



7.6. Manually Starting/Stopping Programs

Programs can be immediately started by a manual command asserted via "**Irrigation control**" screen.



The "**Irrigation control**" screen shows per each valve its current status and its last flow. When the ENTER key is pushed, the last flow field is replaced by an optional command, pushing the ENTER key again will cause the command to be executed. Programs that are not running can be started, and running programs can be stopped.

When the "**start**" command is issued, there are two options: by selecting the option "**Prog**" the program is started as a whole, followed by the sequence of programs chained to it. By selecting the option "**Alone**" only the selected valve's program will be started, not followed by the chained programs, and if there are "**Cycles per day**" defined, only one cycle will be executed.

When the "**Stop**" command is issued, not only the running program is stopped but also the chain of programs which are designed to follow it, will not be executed.

7.7. Freezing Systems Activities

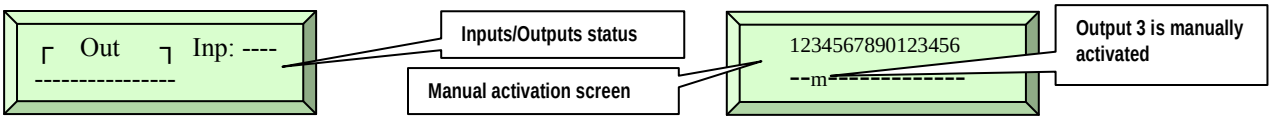
While being inside "Irrigation control" screen and instead of selecting the Start/Stop commands, the vertical arrows is used, the "Freeze" command will pop up. If confirmed by ENTER, the "Freeze" command causes a general system freeze, closing all outputs and halting all programs until receiving the "Resume" command in the same way.

7.8. Clearing Error Statuses

The "**Irrigation control**" screen is also used for clearing error statuses. While the error status is displayed, pushing the ENTER key reveals the "**Clear**" command. When executed, the "**Clear**" command removes the error status from the system. For example if fertilization has stopped because of a **fertilizer failure**, the "**Clear**" command indicates that the problem is solved and the fertilization will continue.

8. Manual Activation Of Outputs

Outputs can be manually activated via the "**Inputs/outputs status**" screen (first screen in IRRIGATION).



Pushing the ENTER key while being inside the "**Inputs/outputs status**" screen, turns it into "**Manual activation**" screen. The upper row shows a list of the available outputs, the bottom row shows the status of the outputs. The cursor can be moved to the desired output by using the horizontal arrows and then the selected output can be switched ON and OFF by using the vertical arrows. An output which has been manually opened will be marked by the letter "**m**". A manually activated output will remain open until manually closed.
Notice that programs have higher priority that manually opened outputs, therefore when an output is opened by a program it cannot be closed manually, but a manually opened output will be overtaken by a program, if the program needs to use that output.

9. Problems Detectable By The System

The problem	The system's reaction	The user's reaction
Low pressure	Halting all activities, reporting	Solving the problem
Low flow	Skipping to next valve, reporting	Solving the problem, clearing the status, starting skipped valve "alone"
High flow	Skipping to next valve, reporting. If in the constants it has been defined to stop the process on high flow and leakages, future irrigations will not be executed until the error status is cleared in irrigation control screen.	Solving the problem, clearing the status, starting skipped valve "alone"
Water leakage	Reporting. If in the constants it has been defined to stop the process on high flow and leakages, future irrigations will not be executed until the error status is cleared in irrigation control screen.	Solving the problem, clearing status
Fertilizer leakage	Skipping to next valve, reporting. If in the constants it has been defined to stop the process on high flow and leakages, future irrigations will not be executed until the error status is cleared in irrigation control screen.	Solving the problem, clearing the status, starting skipped valve "alone"
Fertilizer failure (no flow)	Stopping fert. only or skipping to next valve (as set in the CONSTANTS), reporting	Solving the problem, clearing status
Endless flushing loops	Stops flushing by DP, continues flushing by time, reporting	Solving the problem, clearing status
Low battery (below 4.5 volts)	Reporting	Replacing battery as soon as possible
Very low battery (below 4.2 volts)	Shutting down all outputs	Battery must be replaced immediately

10. Accumulations

The system accumulators include the following information:

- Accumulated water per valve
- Accumulated fertilizer per valve
- Accumulated time of low pressure
- Accumulated number of executed flushing cycles
- Accumulation of uncontrolled water flow (leakage)
- Accumulation of uncontrolled fertilizer flow (leakage)
- Battery level

Notice that accumulators can be set manually and cleared if needed.

11. Filter Backflushing

Included in the subject of FLUSHING the following screens can be found

- A screen for setting the time between flushing cycles (up to 99:59 h:m)
- A screen for setting the flushing time per station (up to 999 sec.)
- A screen for setting the delay between stations.
- A screen that shows the current status of the flushing system, and that enables manual start/stop of an immediate flushing cycle. In this screen one can also set the limit to the number of consecutive flushing cycles after which the system stops flushing by DP and continues flushing by time only.
- A screen for setting the desired behaviour of the system during flushing. The options are : Halting irrigation, continuing irrigation, halting fertilization but continuing irrigation.
- Enabling or disabling flushing triggered by DP during line filling

Notice that the time until next flushing is being counted only if irrigation is in progress.

12. Technical Information

When the system is without GSM modem :

Consumption: 40 µA (standby) 6.5 mA (while display ON)
Power source options: 6v DC by 4 alkaline batteries “D” type or
12v DC dry battery or
12v DC rechargeable battery of 1 Ah + 2.5w solar panel.

When the system includes GSM modem :

Consumption : 55 mA
Power source options: 12v DC rechargeable battery of 7 Ah + 5W solar panel.

Casing : IP56

Temp range: 0-60 C° (operating)

Outputs: 12v pulse latching 2 wired solenoids. Software adjustable pulse amplitude –between 12 to 18 v and pulse width between 10 to 99 ms

Digital Inputs: Dry contacts

Analog Inputs: 4-20mA

13. The SPOT Web Interface

The SPOT is a Web interface that enables the user to access the controller via a special server. Once logged in to the server the user gets full control of everything from everywhere via the internet and on any platform (Windows, Linux, Android, iOS…)

13.1. Logging in

1. In order to get to login page browse (on your PC or mobile) to the following url: http://talgil3.no-ip:8060
2. Insert the **username** and **password** given to you by the installer.

In order to avoid inserting username and password every login just mark the √ at "**Remember Me**" box.

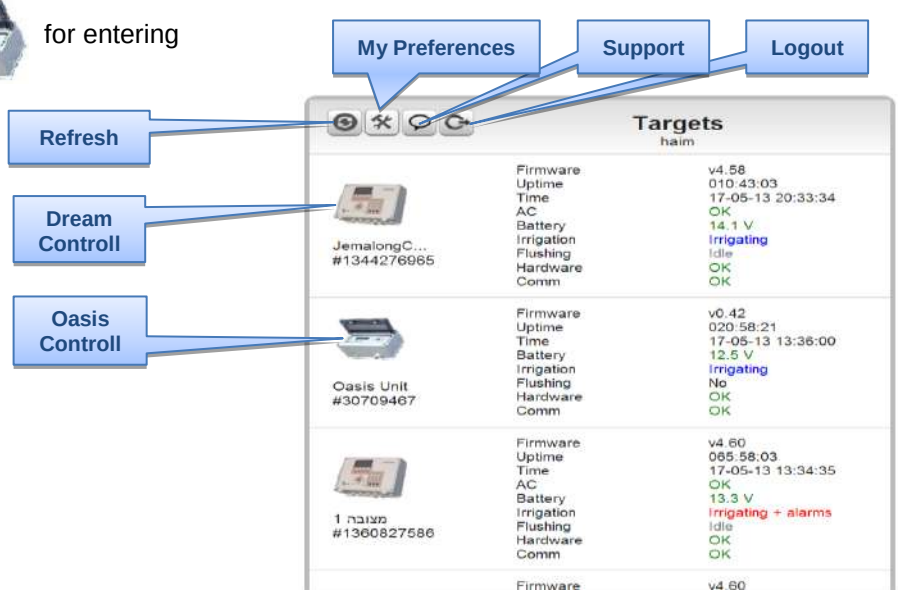
3. Click the **Sign In** button for entering.

13.2. Your Controllers Screen

Once logged in to the system, first screen you meet shows the list of all your Controllers including **OASIS** controllers and **DREAM** controllers.

for each controller the following information is presented: firmware, uptime, current time, battery voltage or AC power supply status, irrigation status, flushing status, hardware errors, and irrigation notifications.

Click the icon  for entering



13.3. Main Menu

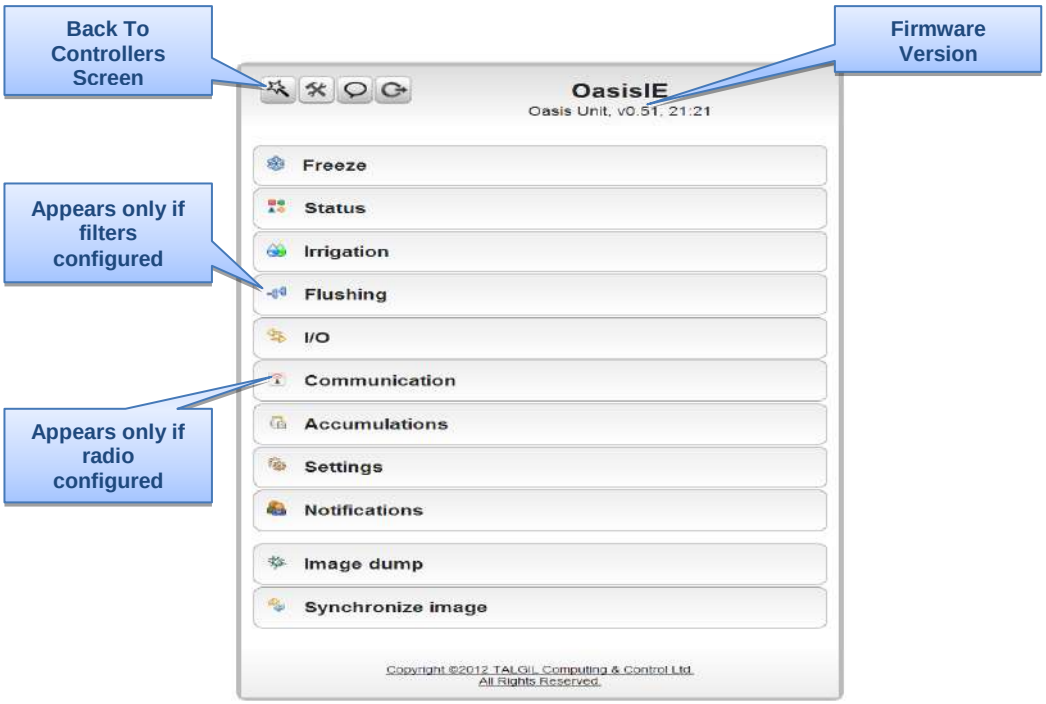
The Main Menu is the dashboard of the selected **OASIS**. It is the place from where the navigation between the different screens is done. It is also the place where Freeze/Release commands can be issued and the place at which synchronizing data between the controller and the server can be done.

On the upper left side of each screen there is a toolbar consisting of some icons out of the following list:

-  - Back to your controllers screen
-  - My Preferences (see details below)
-  - Support - Send feedback (see details below)
-  - Logout
-  - Back to the Main Menu
-  - Back to Irrigation Menu

The main menu contains the following subject:

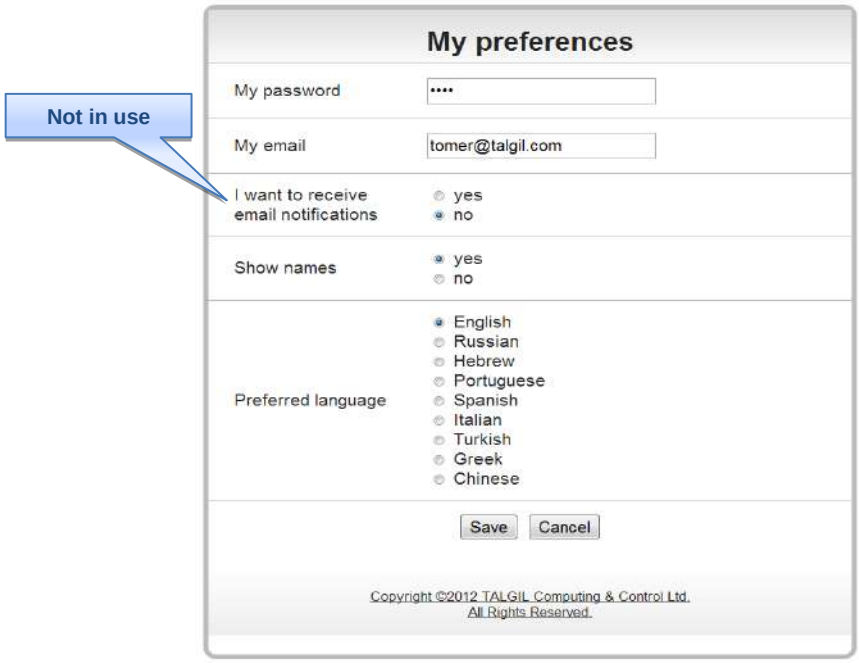
- **Freeze –** Freeze or Release all activities ofthe **OASIS.**
- **Status –** General status: battery, main valve, fertilizer, filter, valves, water and fertilizer flow.
- **Irrigation –** Including: start irrigation, start only selected valve, dosage and irrigation status, defining irrigation schedule, single cycle start, combining valves to irrigate together.
- **Flushing –** Defining and monitoring the flushing process**.**
- **I/O –** Displaying all outputs and inputs status.
- **Communication –** Displays the communication status with the RF RTUs when existing
- **Accumulations –** Including **w**ater and fertilizer accumulated per each valve, leaked water and fert, low pressure duration, flushing cycles count.
- **Setting –** All system parameters. Divided into: general system settings, fertilizer setting (if configured) main valve settings, and each valve setting.
- **Notifications –** Choosing which email notifications will be sent to the user.
- **Image dump –** Not in use.
- **Synchronize image –** Synchronize the data between the controller **and** the web interface.



13.4. My Preferences

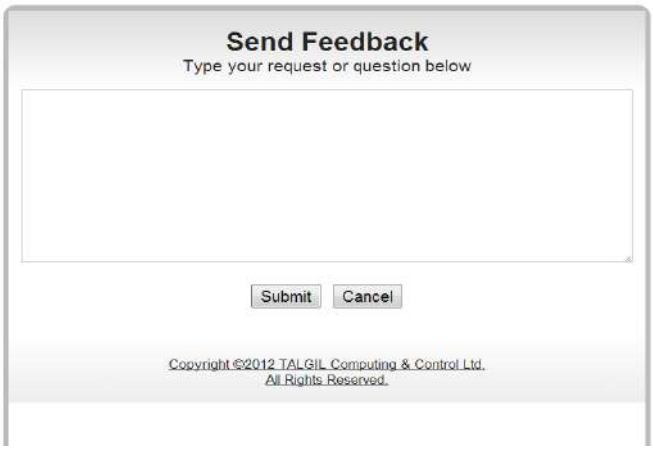
"My Preferences" screen uses deals with the following data:

- Login password
- Email for sending notification
- Send/Don't send email notifications.
- User interface language



13.5. Support - Send Feedback

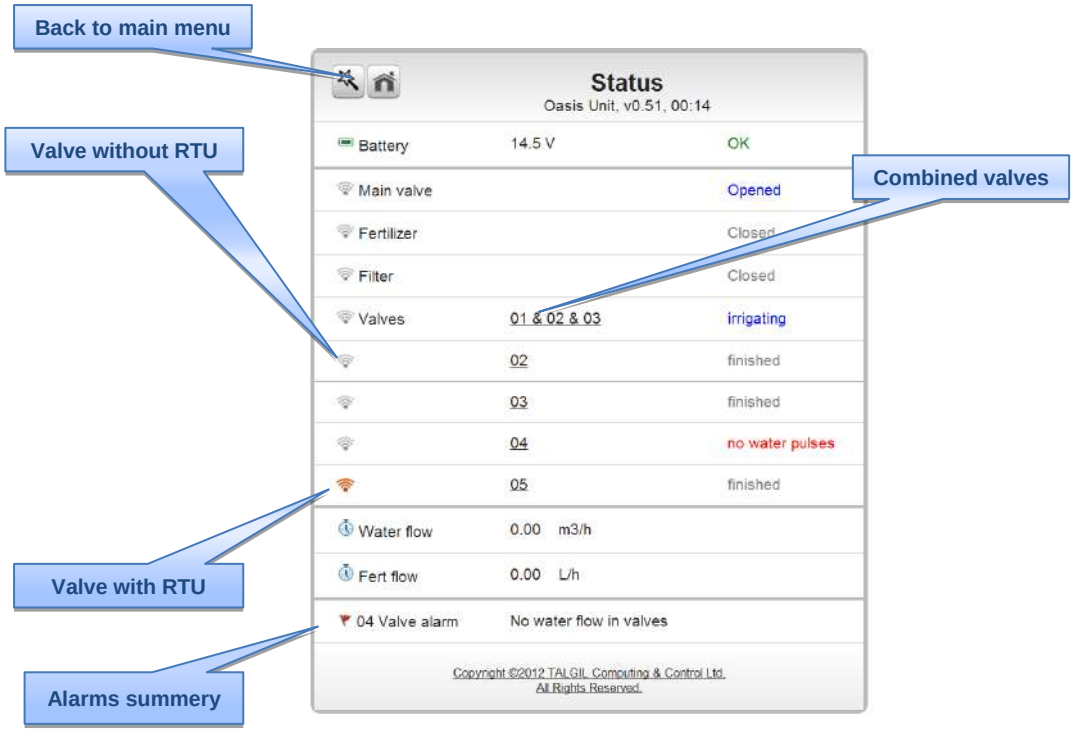
This is a tool for sending support requests or any feedback to the administration team. In case of errors detected or any other issues you are welcome to type your request or question click **Submit** for transmission or **Cancel** to get back to Main Menu without transmitting.



13.6. System Screens

This screen displays the general status of the system. It shows the battery level, the status of the outputs, current water and fertilizer flow and system alarms.

By clicking on each valve you get into the irrigation screen of that valve (further details)

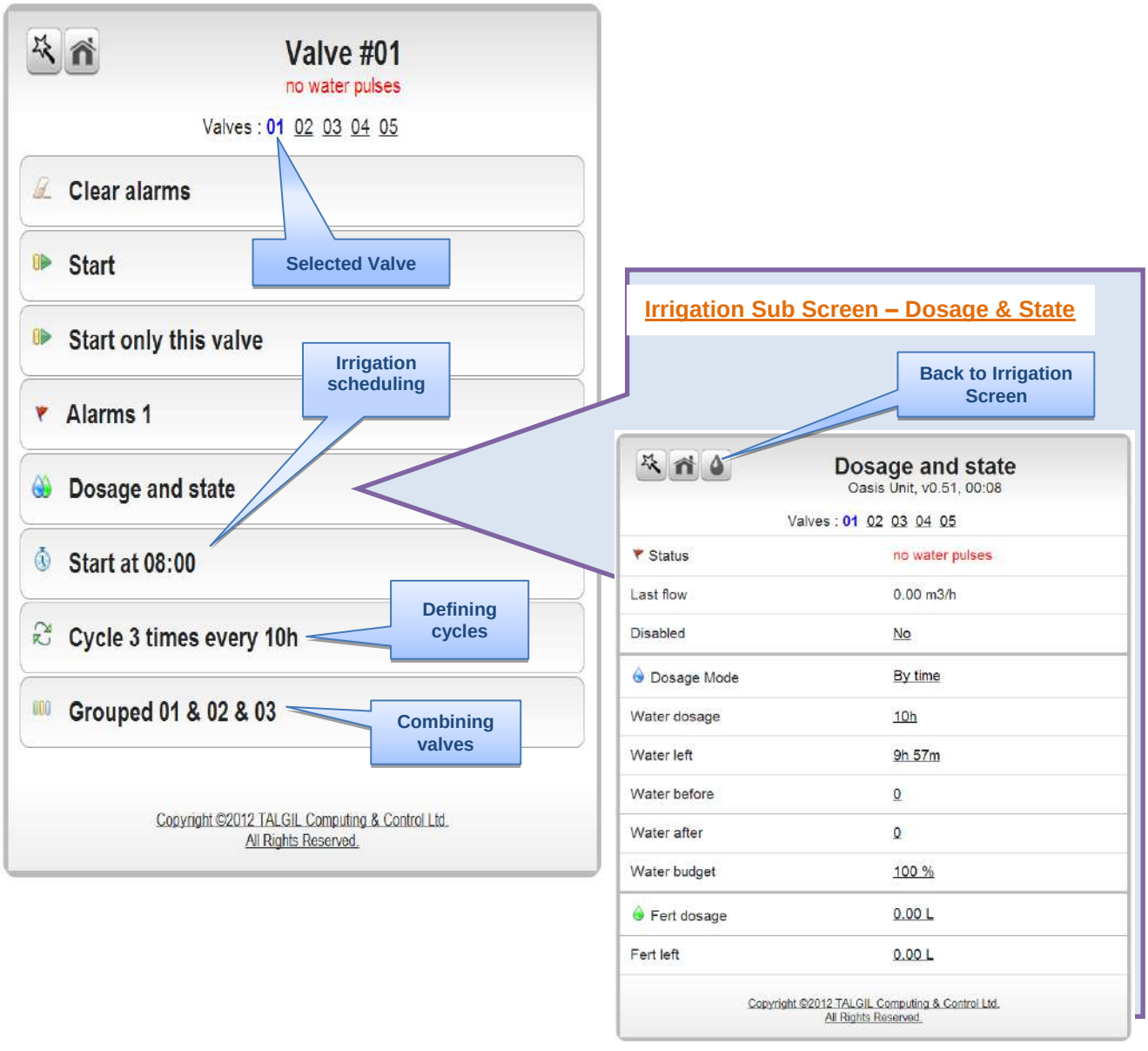


13.7. Irrigation

This screen deals with defining/viewing/changing the irrigation activities for each valve.

In order to navigate between valves click on the desired valve number at the list of valves. the selected valve will become blue.
The following operations exist:

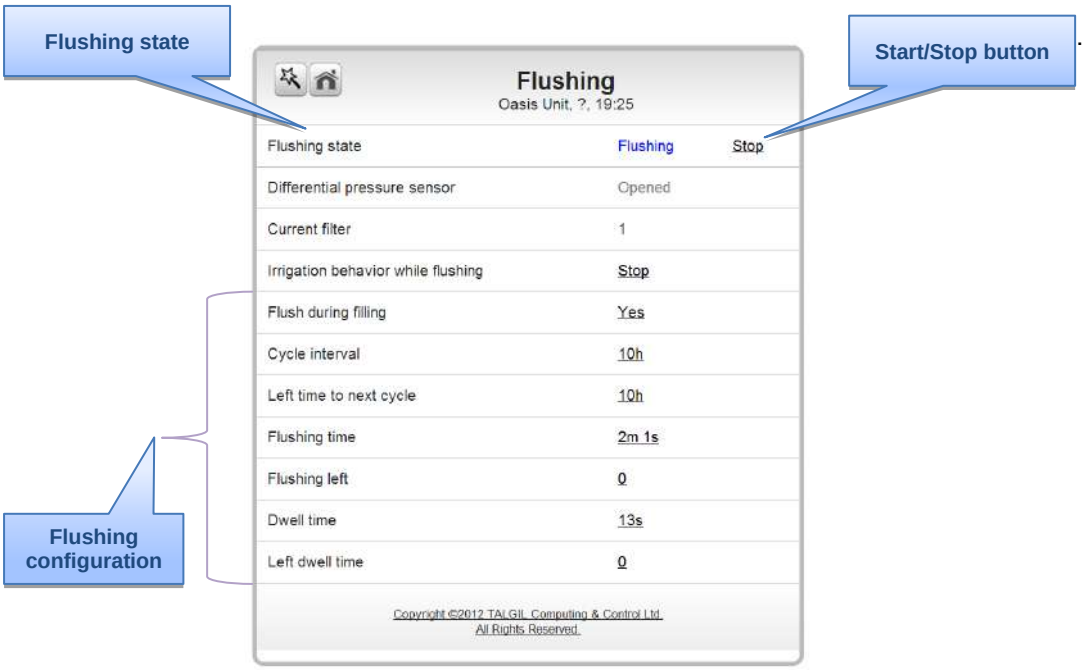
- Clear all alarms of that valve.
- Start program irrigation from that valve.
- Start irrigating only from this valve.
- View all alarms of that valve.
- View and configure dosage of that valve (see picture below).
- View and configure timing type. This screen content is depends on the timing type which selected.
- Configure valve cycle – the number of cycles, cycles left, cycle interval, time left to next cycle.
- View and configure valves combination (Grouped valves)



13.8. Flushing

This screen deals with defining/viewing/changing the filters backflush activities.

- Defining/Viewing flushing parameters: irrigation behavior while flushing, flush during filling time, cycle interval, left time to next cycle, flushing time, flushing left, dwell time, left dwell time.
- Start/Stop flushing by clicking **Start/Stop** button.



13.9. I/O status

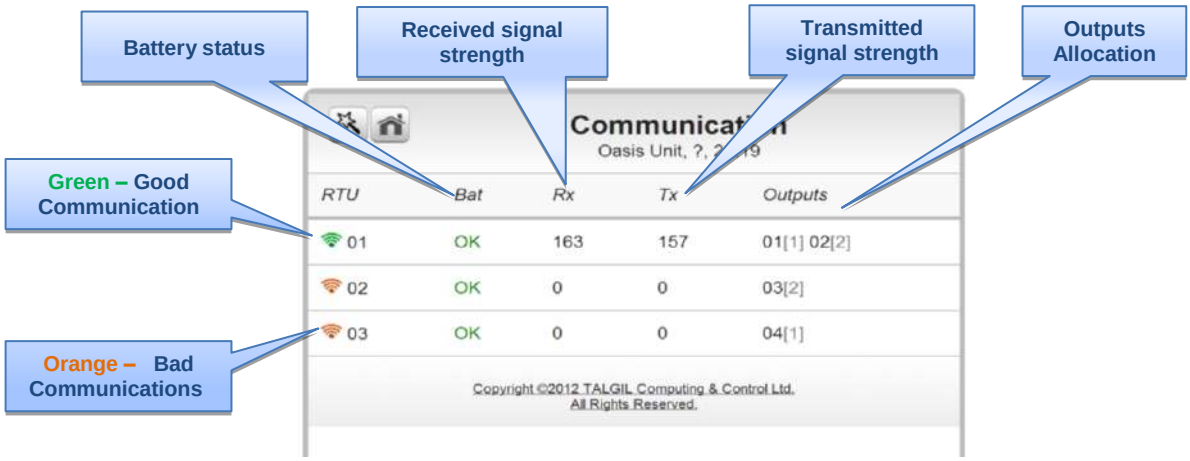
I/O

The I/O (Inputs and Outputs) status screen gives a complete view on the status of all the Outputs and Inputs and enables opening/closing each output by clicking the Open/Close button.

13.10. RTU Communication

Communication

The Communication screen gives a complete view of the RF Communication between the controller and the RTUs. For each RTU included in the system the following information is displayed: The battery status, the strength of transmitted signal and the signal received by each RTU, and finally the connections list of the outputs allocated to each RTU.
For example: 01[8] means - OASIS output number 1 is allocated to output 8 of the RTU.



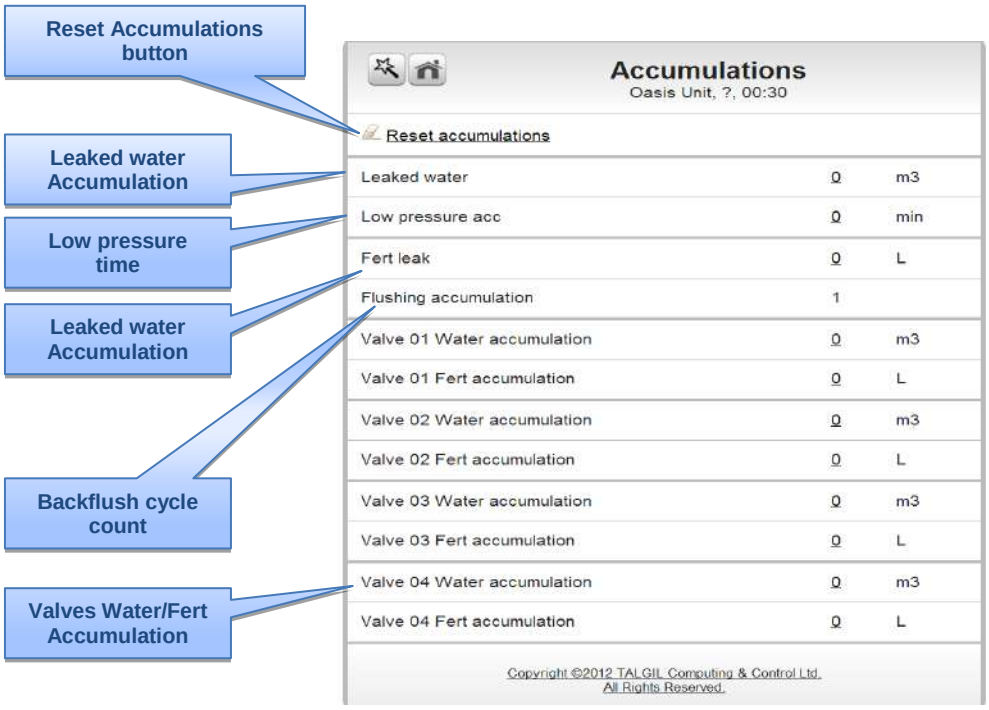
13.11. Accumulations

This Accumulations screen contains all the information related with accumulations in the system:

- Leaked water and fertilizer accumulations
- The accumulated time of the system having Low pressure problem
- Number of Flushing cycles counted
- Water and Fertilizer accumulations for each valve

All accumulators can be cleared by using the **Reset accumulations button**.

Each accumulated value except the Flushing cycles counter may be edited.

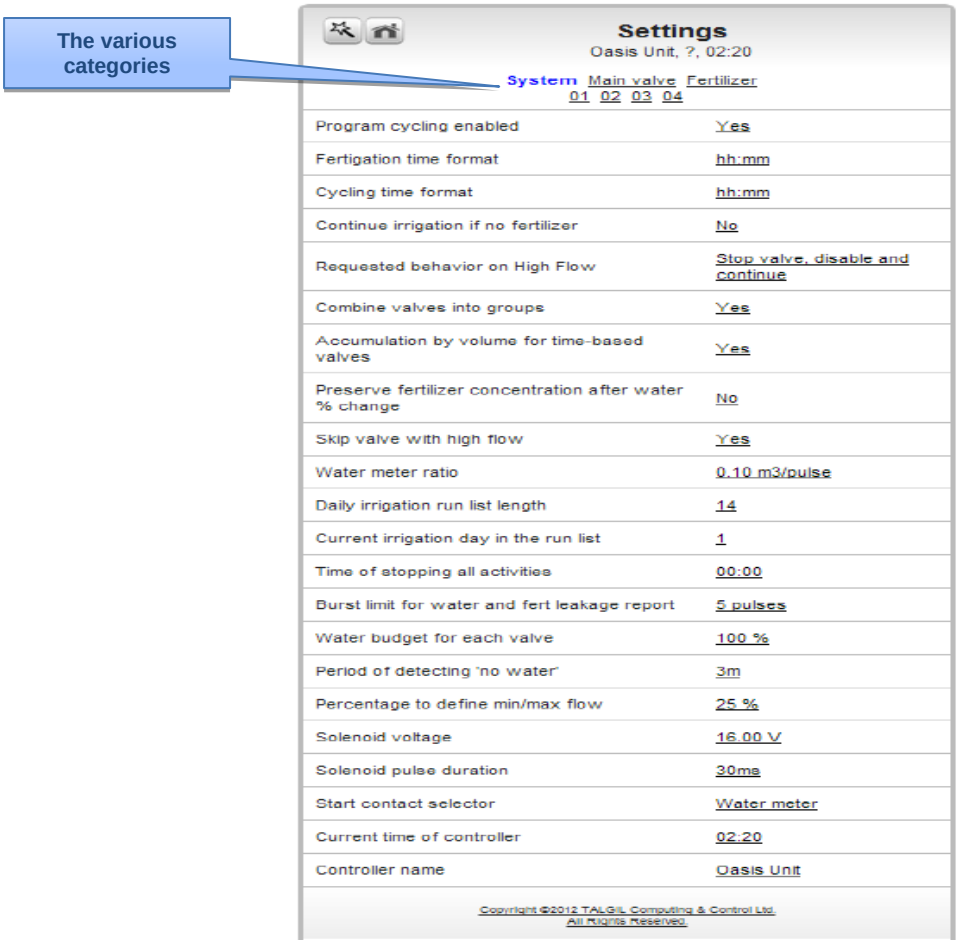


13.12. Setting constant parameters

This subject deals with setting all the constant parameters that define the system's behavior.

The setting is divided into categories: General system setting, Main valve parameters setting, Fertilizer parameters setting and individual valve's parameters setting.

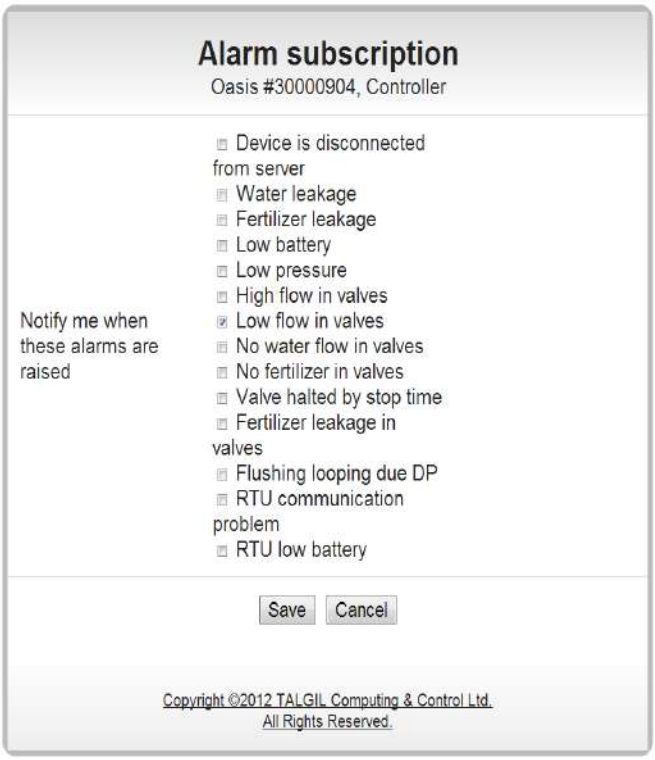
For selecting the desired category click **System** or **Main valve** or **Fertilizer** or the valve number (**01**, **02**, **03** etc…)

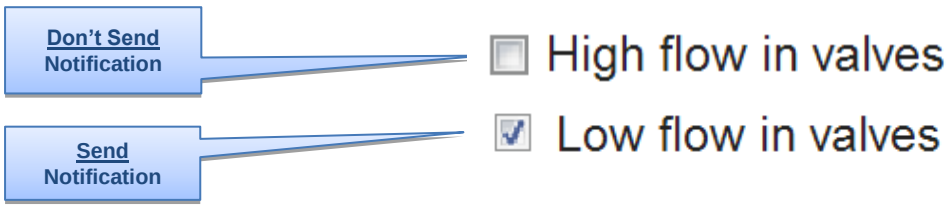


13.13. Defining Notifications Policy

The Notifications policy defines the events at which the user wants to be notified. The Notification will be sent as an e_mail to his mailbox.

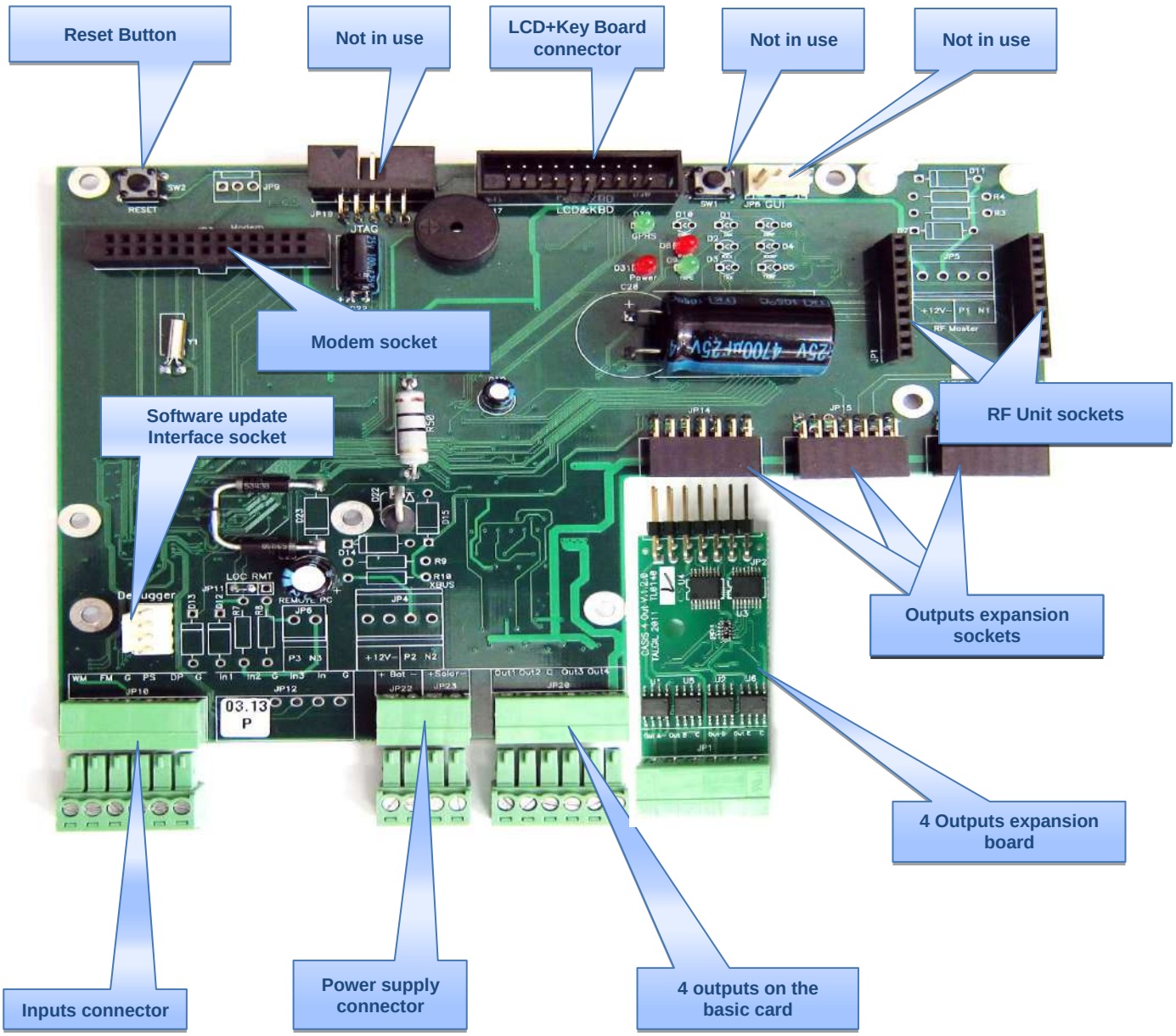
Any event checked by (√) will cause an e_mail message to be sent when the event occurs.





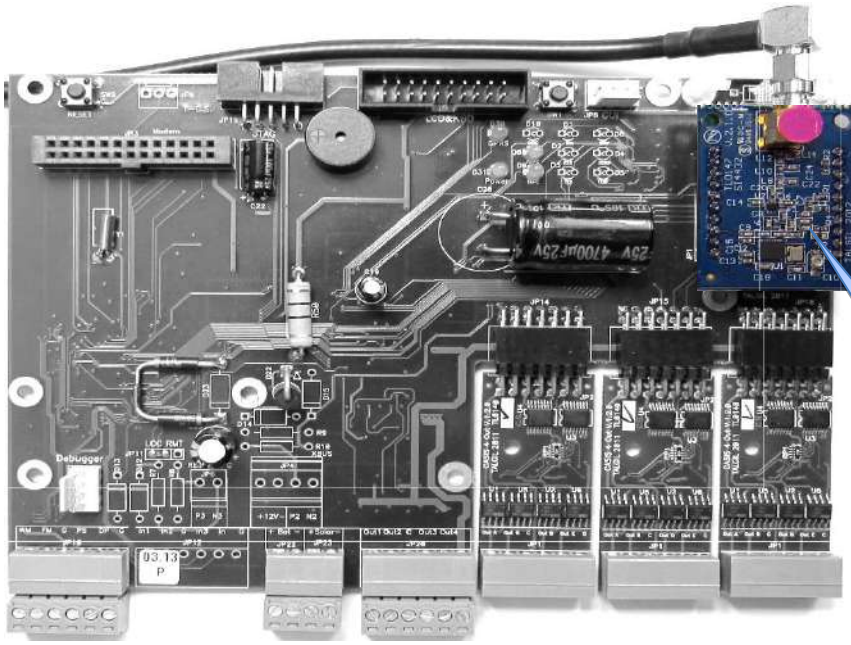
14. Hardware description

14.1. Main boards description

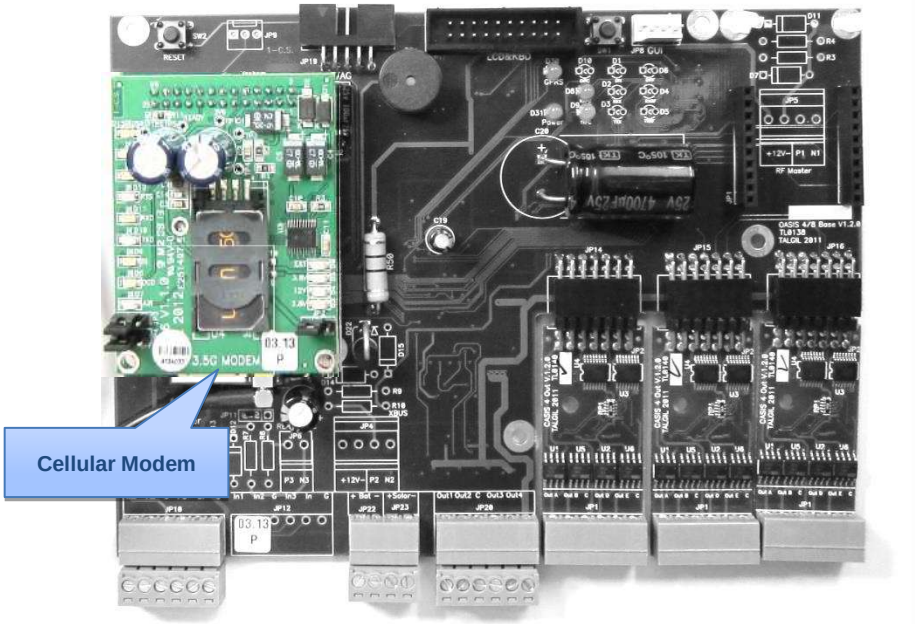


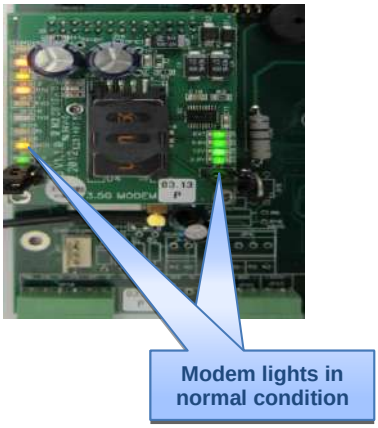
14.2. Adding RF unit and Cellular Modem

With RF Unit connected

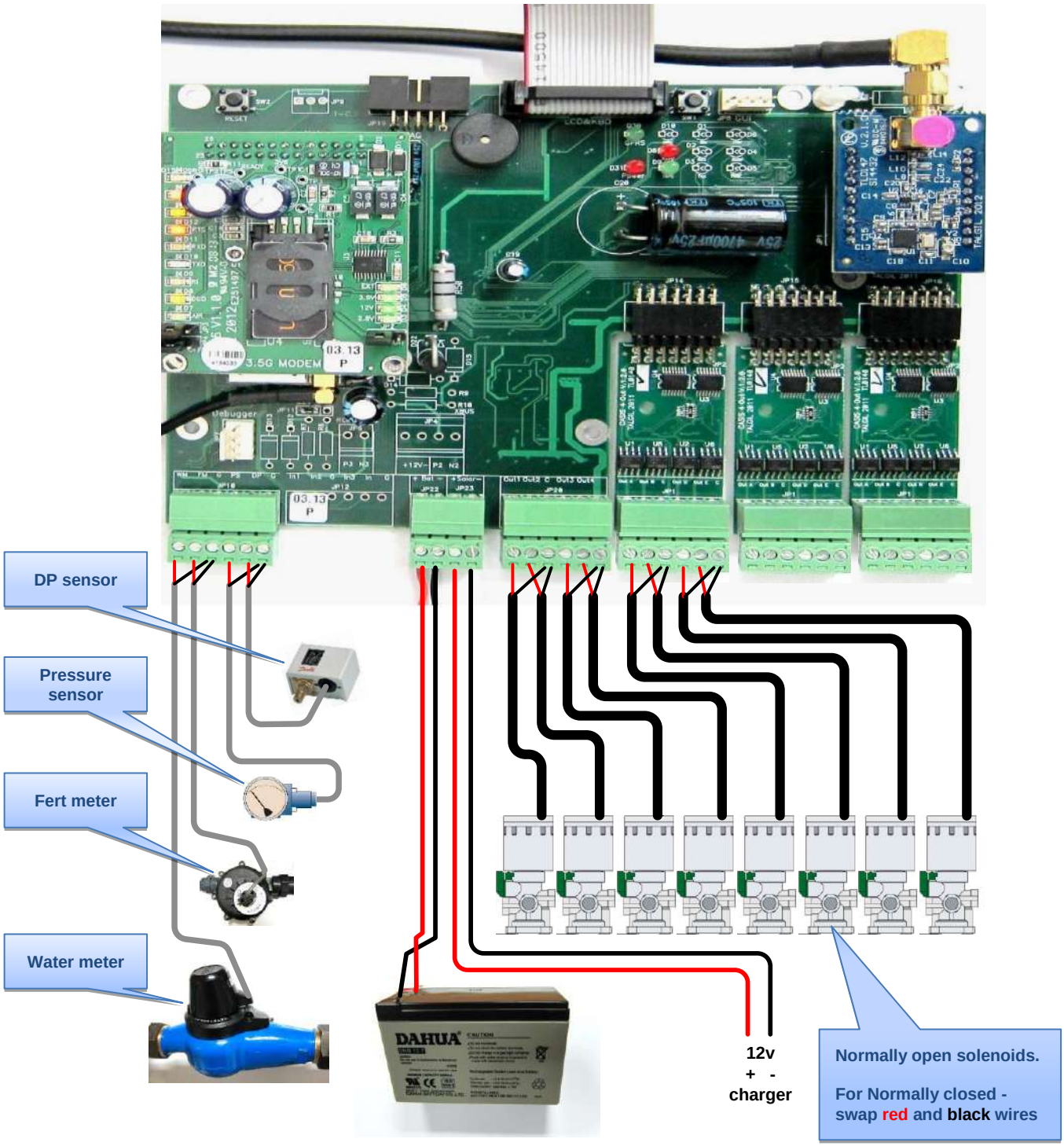


With Cellular Modem





14.3. Inputs Outputs and energy connection



Make sure to disconnect both battery and charger prior to inserting removing Output Expansion boards, RF Unit or Cellular Modem