Sapir 2 – user manual



TALGIL COMPUTING & CONTROL LTD. NAAMAN CENTER, HAIFA - ACCO ROAD 7000 P.O.BOX 775 KIRYAT MOTZKIN 2610701 ISRAEL TEL: 972-49506050. FAX: 972-4-8775949. E-mail: <u>talgil33@netvision.net.il</u>



Contents

- 1. Introduction
- 2. The system structure
 - 2.1 Hardware
 - 2.2 Interfaces
- 3. Communication
 - 3.1 Connection to the server
 - 3.2 Cellular modem
 - 3.3 WI-FI
- 4. Communication with the controller
 - 4.1 Available internet connection
 - 4.2 By WiFi direct (no internet connection)
- 5. First introduction with the console
 - 5.1 What is console
 - 5.2 Downloading the console
 - 5.3 Logging in
 - 5.4 Home page
- 6. System configuration Advanced tools menu
 - 6.1 Setting language, email address and notifications
 - 6.1.1 Console preference My stuff
- 7. changing the controller name and setting notifications Configure
 - 7.1 Changing the controllers name Configure preferences
 - 7.2 Setting notifications Configure preferences Notifications
- 8. monitoring irrigation and activities general
 - 8.1 Irrigation status
 - 8.2 Accumulations
 - 8.3 Inputs & outputs
 - 8.4 my controllers
 - 8.5 Maps & diagrams
- 9.



1. Introduction

The SAPIR 2 is the next generation of central control irrigation systems. It allows combining various technologies to suit each project specific needs. It is an Internet enabled controller so the user can control and monitor everything from everywhere at any time using his PC or Smartphone.

The SAPIR 2 is the perfect solution for small to medium irrigation projects with a single irrigation head, suitable for both simple and most demanding applications.

The SAPIR 2 HAS 16 local outputs + 16 in RTU's, 8 local digital inputs + 8 with RTU's and 4 analog inputs + 44 with RTU's / other interfaces.





2. The system structure

2.1 Hardware



2.2 Interfaces - The following schema describe the principal structure of the SAPIR 2 interfaces system.





The interfaces function is to communicate between the external I/O devices such as – RTU's, analog sensors, weather station.... and the CPU.

Note – the on board local I/O's doesn't have an external interface, it's included in the SAPIR 2 board hardware and software.

For example – the steps of an opening command to valve number 3, which is connected to RTU RF number 2 in output 1:

- 1. The CPU will send the opening command to the interface / master RF.
- 2. The interface / master RF will send the command to RTU number 2.
- 3. RTU number 2 will open output 1.

When use digital or analog senores, the same logic works but the other way around, meaning that the sensor is connected to an input in the RTU and when the sensor send a signal to the RTU, it sends it to the interface and the interface to the CPU.

Communication with the physically connected external interfaces is done by RS-485 communication protocol.



3. Communication

3.1 – Connection to the server

Connecting the controller to the server allows the user to program and monitor the controller from everywhere at any time, moreover, it allows to multiples users access to a certain controller and / or access with a certain user name to multiples controllers.

All the communication between the users pc / smartphone and the controller is happening in the server (except while using WIFI direct), for example, if a user changes a certain irrigation program from his computer using the CONSOLE, the changes are done in the server, and the information passes to the controller.

In addition, all the information from the controller (online controller) saved in TALGIL's server (cloud).





There are 2 ways to connect the SAPIR 2 to TALGIL server, first one is by cellular modem and a sim card with data package (at least 100Mb), and the second one is by connecting to the local Wi-Fi net.



3.2 – Cellular modem

In order to connect the controller to TALGIL's server, disconnect it from the power supply and rechargeable battery, open carefully the SIM card holder place it the right position and close the holder, to continue go to paragraph 6.



3.3 – WI-FI

The Wi-fi modem connection will be ready in Q1 of 2019.





4. Communication with the controller

Communication with the controller is made by using 2 platforms, the first platform is the DREAM CONSOLE PC software (computers, laptops), and the second one is the SPOT app (smartphone, tablet).

4.1 Available internet connection

When there is a solid internet connection both options (Console and Spot) are available, the installer MUST connect the controller to the internet in order to create the system configuration.

4.2 No internet connection

In case of no internet connection, only the SPOT app is available and will work only while the user is standing near the controller and the internal WIFI component is turned on.



Note – there is no physical connection between the controller and the computer



5. First introduction with the console

5.1 What is CONSOLE?

The DREAM CONSOLE pc software is a platform that allows programming and monitoring the SAPIR 2 from any pc or laptop, the only requirements are internet connection of the controller and the computer, user name and password and downloading the software.

Using the software allows the user creating and editing irrigation programs, monitoring irrigation performance, graphical analyze of inputs (sensors water meters...), creating maps and so much more.....

5.2 Downloading

For downloading the CONSOLE software click <u>here</u>, or enter our website **www.talgil.com**, after reaching to the home page, select: **Software** Console Download Console 64 bit and follow the installation instructions.

5.3 logging in

After the downloading process, a shortcut with the icon of TALGIL Should appear on the computer desktop, Double click on the short cut will Bring you to the user name and Password window, insert your user name and Password in the Designated spots and click "connect".





Note - before logging in make sure "Host" and "Port" are correct

- Host srv.talgil.com
- **Port –** 80



5.4 Home page

the **Homepage** is the first screen you'll see, it contains the menu of all the subjects covered by the **CONSOLE**, it is the place from where the user can reach all of those subjects, let's have a closer look and see what else is there.

7		TALGIL Console, v3.2.0.755	2		_ 🗇 🗙
• 🕜 •	Monitor 🕢 Plan	Analyze 🕼 Config 💥 Toolbar			🛞 Freeze
Pull down menu	Initiation status Rait time consolidated status Rait time consolidated status Mater and ferbliers Consolidated status Rait time consolidated status <t< th=""><th>Plan Inrigation Brograms Manage your information Manage your information Bettee and manage satellite Components Conditions library Manage librares of components Inrigation Bettee and manage yatellite Components Porgram library Components Porgrams library Brograms library Manage libraries of ingation programs Main menu</th><th><section-header></section-header></th><th>Configure Preferences Constants Constants</th><th></th></t<>	Plan Inrigation Brograms Manage your information Manage your information Bettee and manage satellite Components Conditions library Manage librares of components Inrigation Bettee and manage yatellite Components Porgram library Components Porgrams library Brograms library Manage libraries of ingation programs Main menu	<section-header></section-header>	Configure Preferences Constants Constants	
Production, sry.t	algil.com, v3.2.0.7552 Ready	Status bar	SAPIR, 83281591, v0.171, 11:11	87+0200	61M of 302M

The Main Menu - The subjects of the **Main Menu** are grouped into meaningful groups, each group containing the relevant subjects. There are four groups:

Monitor – deals with monitoring the current activities
Plan – deals with the users irrigation planning.
Analyze – deals with analyzing accumulated historical information.
Configure – deals with all the information related with the system setup.

Depending on the configuration of the various targets there may be some differences in the list of subjects included in the menu.

The **pool down** menu contains the same parameters as the main menu, and it's available all the time in all the screens.



6. System Configuration - Advanced tool menu

In this chapter we will define the CONSOLE preference and create the system configuration, to enter the advanced tool menu click on in the upper center of the home page screen.

After clicking the icon, a small tools table will appear:



6.1 Console preferences

The **Console Preferences** perspective can be reached from the **Main menu** or the **Pull down menu** by selecting **Tools/ Console preferences**.

Obviously this section deals with setting some parameters that will affect the appearance and the behavior of the **Console.**



6.2 Console preference – my stuff

7	Co	nsole preferences	×	$\overline{1}$
General My stuff Advanced	Personal Display language My email My login password Push notifications	English Off		
	(Name) (Description)			
			ок	

Pointers

- 1. Click to select the Console language.
- 2. Set your Email address, for receiving system reports and notifications.
- 3. Set your login password.
- 4. Enable / disable push notifications

Personal		
Display language	English	
Myemail		
My login password	*****	
Push notifications	Off	*
	Off	
	Delayed	
	Faults only	
	Normal	
	Verbose	

Off – Push notifications will not be sent to this user, he will receive only emails according to the "**system events subscription**" list (paragraph 10.2).

Delayed – Push notifications will be sent to the user in bulks aggregate every 1 hour.

Faults only – Faults will be sent instantly as push notifications, other events are ignored.

Normal – Faults will be sent instantly; other events will be aggregated and sent every 5 minutes, all the notification will be sent as push notifications.

Verbose - Everything is sent instantly (developers and affiliates only)



7. Characteristics of the irrigation system – Configure

The following chapter focuses on the data involved with the Configuration of the controller and with the process of adapting it to the specific application. This is the place to look for information about the system structure, the hardware in use, the connections list of all the accessories, the constant parameters, the user preferences and more.

7.1 Configure – preferences – General

The General preference screen demonstrates general information of the controller.

Image: Second
Affiliate - Project - Time zone Asia/Jerusalem - GMT+02:00, Israel Standard Time Connection 172.31.2.73

1. Click on the icon to edit the controller name.

7.2 Configure – preferences – Notifications

The screen below is dedicated for selecting the Notifications the user would like to receive, there are two options of notifications the user may request.



	7	SAPIR, 83211457 preferences	×
	General Comeral Comeral Comeral Comeran Notifications	SAPIR, 83211457 preferences	
		Manual stop	
		Start by time	
Pointers		ОК	1

- 1. **System events subscription -** Notifications by Emails or push notifications to the user smartphone, the user must have the "SPOT" app to receive push notifications.
- 2. **System alarms subscription -** Notifications by popup window will appear on the user computer screen while the CONSOLE software is open.

Note – the notifications are for each user of the controller, in case there is more than one user, each one of them can select the notifications that he would like to receive.



8. Irrigation monitoring - General

The following chapter deals with the Monitoring tools supplied by the System, you can find the monitor list of content in the main menu or in the pull down bar.

	TALGIL Console, v3.2.1.7	661		_ 8 <mark>×</mark>				
🔶 💼 🔹 🌆 Monitor	Analyze 🕸 Config 🔀	SAPIR	SAPIR 🛞 Freeze	•				
Wonitor ** Irrigation status Real time consolidated status ** Accumulations ** Inputs & Outputs ** Inputs & Outputs ** Mage and fortilizer ** Mage and fortilizer ** Inputs & Outputs ** Mage and fortilizer ** Mage and fortilizer ** Water and fortilizer ** Mage & Diagrams ** Live diagrams and geo-mage	<section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header>	<section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header>	<section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header>					



8.1 Irrigation status (monitor / irrigation status)

The irrigation status screen supplies real time information on all the current activities of the controller.

7		TALGIL	Console, v3.2.	1.7661		- 8 ×
🔹 🏠 🔶 💐 Monitor 🔊 Plan 🔮 Analyze 🥨	onfig 🛞			Irrigat	tion statu	S ADC, Port Elliot 🛞 Freeze
No selection context		1>12>1	3>14>15	16		View Javnut 💷 💷 💷
			Flow	m ³ /h		
Target Program State	Valve	State	Cur	Nom	Left	ADC. Port Elliot. 83237874
ADC, Port Elliot 1 - Oval x 1h ORunning with problems	Oval 1	LF	4.864	24.70	00:34:23	VMM1 Line 1 water meter Line 4.864 5
Image: State into size Image: State into size S	V14 V15 V16 V	17 WM				2 Outstanding system alarms Time stamp Target Type Object T 1 27 Jan 21:07:37 ADC, Port Elliot Low water flow Line, Oval 1 4

Pointers

- 1. Running irrigation programs window.
- 2. Water and Fertilizer flow meters window.
- 3. Window of **complimentary tabs**:
 - Inputs and Outputs status
 - Irrigation programs status.
 - Hardware communication.
 - Filters.
 - Analog sensors.
- 4. Outstanding system alarms.
- 5. Screen view layout.

Note – the type and quantity of **complimentary tabs** can change according to the system definitions, for example if you have analog sensor or filters you will see additional tabs.



8.1.1 Running irrigation programs window (monitor / irrigation status)



Pointers

- 1. Name of the controller / target.
- 2. Name of the program.
- 3. Program state.
- 4. Valve / group number.
- 5. Valve / group state.
- 6. Valve / group current and nominal flow.
- 7. Volume or time left to finish the irrigation program.
- 8. Current fertilizer flow, and time / volume left to finish the fertilization program.
- 9. Changing the screen size by click and dragging.

8.1.2 Water and Fertilizer meters window (monitor / irrigation status)



- 1. Current water meter flow.
- 2. Current fertilizer meter flow.



Auto-size Show n Line 1 MV4 Satellites SAT1 Indication Contacts CON1	FRT1 FLT1	FLT2 V1	1 1/2 1/3	V4 V5	5 1/6 1	/7 V8	V9	V10	V11	V12	VVM	FM1	DP P	PM
Line 1 MV4 Satellites SAT1 Indication Contacts CON1	FRT1 FLT1	FLT2 V1	1 2 3	V4 V5	5 16 1	/7 V8	V9	VIO	V11	V12	VVM	FM1	DP P	PM
Satellites SAT1 Indication Contacts CON1	CON2													
Indication Contacts CON1	CONS					$\overline{\langle}$								
									1					

8.1.3 Window of complimentary tabs (monitor / irrigation status)

- Inputs and outputs status tab demonstrate the current status of the outputs and digital inputs, clicking the right button of the mouse on one of the I/O will open a small list that contain options such as : open / close outputs manually, go to constants, etc.
 Open or close manually will only open/close the selected output.
- 2. Other programs tab viewing programs status: Finished, scheduled, Frozen or incomplete.
- **3.** Filters viewing the filters program configuration and execute manual operation by clicking on the right button of the mouse on the filter site and select **Start flushing**.
- 4. Analog sensors this tab is for viewing the current analog sensors values.
- 5. Hardware communication shows the communication between the SAPIR 2 its interfaces and RTU's, when a communication problem occurs the interface or / and RTU will be colored in red and an alarm message will pop.



8.1.4 Outstanding system alarms (monitor / irrigation status)



Pointers

- 1. Time of the alarm.
- 2. Which target (in case the user have more than one controller).
- 3. Type of the alarm.
- 4. The object that indicates the problem.

8.2 Accumulations (monitor / Accumulations)



- 1. Water and fertilizers Accumulations by volume and time.
- 2. Fertilizer meters accumulations.
- 3. Water meter accumulation.
- 4. The tab bar contain several options such as: Total or Last accumulations, Reset all (delete all accumulations), Export all the accumulations to an Excel file.



8.3 Inputs & Outputs (monitor / Inputs & Outputs)

ζ								TALG	L Console,	v3.2.1.76	61									_ 🗖 💌
< 🔂 🔶	Inputs & Outputs 🖉 Plan 🙀 Analyze 🕸 Config 🐒 Inputs & Outputs																			
😨 🚍 🗮 Auto-s	ize 🗌 Sh	ow names																	(Help
SAPIR																				\$
Line 1	MV1	FRT1	FLT1	FLT2	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	WM	FM1	DP	PM
Satellites	SAT1	SAT2																		
Indication Contacts	CON1	CON2																		
• BI	Inp ack -	uts &	& out ned b	puts	– s ogra	how m.	ing	the i	npu	ts (p	ourpl	e) a	nd c	outpu	uts (k	origh	t gre	en) :	statu	IS:

Blue – opened manually.

Red – problem.

• Clicking the right button of the mouse on one of the I/O will open a small list that contains options such as: open / close outputs manually, go to constants, etc.

8.4 My Targets (monitor / My Targets)

τ								TALGIL Conso	le, v3.2.1.7661								_ 🗇 🗡
4		•	Monitor 👩 Pla	in 🧯	Analyze	🔅 Config	*			Му٦	largets				•	SAPIR	Freeze
4	Refresh	Show	map														
	Туре	Serial # ¹	Name	Affiliate	Project	Firmware	Config	Reset	Time	Battery	AC	Irrigation	Flushing	Interface	RTU	Connection	Disconnection
	SAPIR	81249103	TALGIL ARAVA - SAPIR	TALGIL	ARAVA 2019	v0.173	08 Aug, 17:59	21 Jan, 11:37	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	21 Jan, 12:07	21 Jan, 12:28
	SAPIR	83225549	SAPIR			v0.173	10 Jan, 15:12	28 Jan, 10:09	28 Jan, 11:44	13.69	0K	Idle	Idle	Error	0K	28 Jan, 10:10	28 Jan, 09:44
	DREAM	1524404247	TALGIL ARAVA	TALGIL	ARAVA 2019	v4.106	06 Jan, 12:41	21 Jan, 11:40	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	21 Jan, 12:09	21 Jan, 12:28

• This screen shows general information of the controllers related to the user name.

8.5 Maps & diagrams (monitor / Maps & diagrams)

• To create map please look in the maps and diagrams appendix.



8.6 Weather (monitor / Weather)



- 1. In case it's a **PESSL** weather station this icon will appear, clicking on it will open **PESSL** "Filed climate" web page.
- 2. Clicking on the **Location** icon will open a map with the location of the weather station (only if it's PESSL).
- 3. Weather station current values (can be watched also in "irrigation status").



9. Irrigation planning

The following chapter deals with planning irrigation programs and other activities, it can be reached from the main menu or from the pull down bar.

τ	TALGIL Console, v3.2.1.	7661		
Monitor Plan	Analyze 🖉 Config 🔀	SAPIR	SAPIR 8	S Freeze
Monitor * Irrigation status Real time consolidated status * Accumulations * Dupts & Outputs To states and control * Must and fertilier accumulations * Pupts & Outputs To states and control * Magnetic States * Weather station monitor	Irrigation ** programs Manage your imigation ** Anage your imigation ** Orgonant imigation </th <th><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></th> <th>Configure Performance User defined preferences for Define constant parameter Define constant parameter Define constant parameter Dealer definitions Dealer defini</th> <th></th>	<section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header>	Configure Performance User defined preferences for Define constant parameter Define constant parameter Define constant parameter Dealer definitions Dealer defini	



9.1 Irrigation programs (plan / irrigation programs)

In the irrigation programs screen the user can create, edit or view his programs, it's the most used screen in the system.

7		TALGIL Console, v3.2.1.7661		_ 🗖 🗙	-
🔶 💼 🔶 🦉 Monitor	lan 📑 Analyze 🎯 Config 💥	Irrigation programs	SA	APIR 🛞 Freeze	$\left(1 \right)$
Send to target	Undo All Show names	🕪 Start 🔳 Stop 🔷 Skip 🏟 Freeze p	rogram		$\mathbf{Y} \cup$
* ID Name	State	Completion Priority Schedule	Conditions	Sequence	
1 Program - 1	Waiting condition	Disabled 0 Start at 22:30:00, W [W] W W W W	ENABLE DISABLE	1.1 🗕	
2 Ferti Manual 1 - Válvula 1	Ready + condition	Disabled 3 Start by condition, - [-]	START STOP ENABLE DISABLE	1.1	
3 Ferti Manual 2 - Válvula 2	Ready + condition	Disabled 3 Start by condition, - [-]	START STOP ENABLE DISABLE	1.2	
4 Janela não trabalhar	Scheduled today	Disabled 9 Start at 17:00:00, W [W] W W W W	STOP ENABLE	1.6] (_]
Ferti Manual 1 - Válvula 1 Valve 1.1					
Current flow (nominal), m3/h 0.00 (100.00)					
Water dosage method hh:mm:ss					
Water dosage planned 24:00:00					
Water dosage left 00:00:00					
Water before local 00:00:00					
Water after 00:00:00		No. Market			,
🔁 1/0 🕔 Irrigation schedule 🛛 👔 Program visual	lization 📲 Filters 😤 Hardware communication	Fert & water meters			
Auto-size Show names					
Line 1 MV/1 FRT1 FLT1 FLT2	V1 V2 V3 V4 V5 V6 WW DP				
Satellites SAT1 SAT2 SAT3 SAT4					
Indication Contacts CON1 CON2 CON3 CON4	CON5 CON6				
					V

- 1. Irrigation programs toolbar.
- 2. Programs List and status.
- 3. Water and fertilization settings of a selected program.
- 4. Complimentary information view.



9.1.1 Irrigation programs toolbar



Pointers

₽

- 1. For a create new program, will open the programs wizard.
 - Not in use.
 - Delete selected program.
 - Delete all programs.
 - E Export program to library.
- A send to target after making changes in the CONSOLE click on Send to target in order to confirme the changes, it's possible to make several changes in the same screen before clicking on Send to target.

- if you would like to cancel all the changes before clicking on **Send to target**, click on **Undo All**.

3. **•** The **Start** icon contains several options to start a program.

Start normally	
Start without fertilizer	
Start with lefts	
Start from 🕨	1.1
	1.2
	1.3

• Stop runing program.

- Skip the runing valve or group and go to the next one in the sequence.
- 🕸 Freeze program 🛛 pause program.

🛞 Release program 🛛 - release program.

Please confirm
Please confirm

Terminate activity after release?

Yes No Cancel

 after selecting Realese program you can choose to terminate the program activity or continue from the puasing point.

4. **ERE** - These 5 icons are used to select the display of the screen.



9.1.2 Programs List and status

In the following window you can see all the programs and their status, double clicking on one of the programs under the selected column will allow you to change the program definitions by opening the programs wizard or inserting numbers directly.

*	ID	Name	State	Completion	Priority	Schedule	Cycles	Cycles left	Interval	Interval left	Conditions	Sequence
	1		Running	Disabled	0	Start at 08:00:00, [F] - F - F	0	0	00:00:00	00:00:00		1.1 > 1.2 > 1.3
	2		O Scheduled	Disabled	0	Start at 09:00:00, every 2-nd day, begin today	3	0	00:00:00	00:00:00		1.4 > 1.5 > 1.6
	3	Program - 3	O Between cycles	Disabled	0	Start at 10:00:00, [W] W W W W W W	3	2	00:10:00	00:09:12		61
	4	Program - 4	O Not ready	Disabled	0	Notscheduled	0	0	00:00:00	00:00:00	START STOP	1.4 > 1.8
	1		2	3		4 5		6		7)	8	9

- 1. Program name and ID.
- 2. Program status Running, Scheduled between cycles and etc.
- 3. **Completion –** Disabled or enabled automatic completion of an unfinished program.
- 4. **Priority –** giving priority to a certain program over other programs in case of a conflict between them, 9=high priority, 1=low priority.
- 5. Programs schedule in which day, time and / or interval the program will start.
- Cycles how many cycles of irrigation for day Cycles left – how many cycles are left.
- Interval time between cycles.
 Interval left time left for the next cycle.
- 8. **Conditions –** for start, stop, enable or disable a program.
- 9. Sequence which valves or / and groups are participating in the program.



	Valve 1.1	Valve 1.2	Valve 1.3	Valve 1.4	Valve 1.6	Valve 1.9	Valve 1.10	G1
Valve state	C	С	С	С	С	С	С	С
Current flow (nominal), m3/h	0.00 (25.00)	0.00 (34.00)	0.00 (19.00)	0.00 (100.00)	0.00 (100.00)	0.00 (100.00)	0.00 (100.00)	0.00 (400.00)
Water dosage method	hh:mm:ss	m3	m3/area	hh:mm:ss	m3	hh:mm:ss	m3	hh:mm:ss
Water dosage planned	00:35:00	30.00	2.50	00:30:00	150.00	00:48:00	52.00	00:15:00
Water dosage left	00:00:00	0.00	0.00	00:00:00	0.00	00:00:00	0.00	00:00:00
Water dosage calc	00:00:00	0.00	17.50	00:00:00	0.00	00:00:00	0.00	00:00:00
Water before local	00:00:00	0.00	0.00	00:00:00	0.00	00:00:00	0.00	00:00:00
Water after	00:00:00	0.00	0.00	00:00:00	0.00	00:00:00	0.00	00:00:00
[1] Local fert method	L/m3	L bulk	time	None	None	None	None	None
[1] Local fert planned	2.50	30.00	00:01:00	0.00	0.00	0.00	0.00	0.00
[1] Local fert left	0.00	0.00	00:00:00	0.00	0.00	0.00	0.00	0.00
[2] Local fert method	L prop	L prop	L prop	None	None	None	None	None
[2] Local fert planned	10.00	10.00	10.00	0.00	0.00	0.00	0.00	0.00
[2] Local fert left	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

9.1.3 Water and fertilization settings of a selected program

Pointers

- 1. Valves or groups that participating in the program and their opening order from left to right, meaning that first to open will be valve 1.1 when it will finish valve 1.2 will open and etc.
- Valve state the letters in this line describes the valve status (for example C = Closed), pointing on the letter/s with the mouse will open a small window with the full description of the valve status.

Current flow (nominal), m3/h – describes the nominal flow of the valve or group (inside Parenthesis), and the current flow (outside Parenthesis).

3. Water dosage method – irrigating by hh:mm:ss (time), m3 (volume), m3/area (volume for area), evaporation. Double clicking on the box under the valve will open the list of dosage methods; in case the wanted dosage doesn't appear please check the parameters in Configure / Dealer definitions.

Water dosage planned – the planned water quantity, time and etc. for each valve or group.

Water dosage calc – the total quantity of water when irrigating by m3/area (for example – look at valve 1.3 in the image above, the dosage is 2.5 m3/area and the valve area is 7, 2.5*7=17.5m3 (the valves area are defined in **configure / constants / valves**).

4. Water before local – the amount of water / time taken from the water dosage planned to irrigate before starting fertilization.

Water after – the amount of water / time taken from the **water dosage planned** to irrigate after finishing fertilization.

 Local fert method – by double clicking on the fert method box under the selected valve or group a list of fertilization methods will open, select the required method. to get an explanation or changing parameters of the fertilization methods go to Configure / Dealer definitions and select Fertilization tab.

Local fert planned – select the quantity of fertilizer that you would like to inject, the quantity can be time, L/M3, L bulk.....



Note – the numbers in prentices (1), (2), (3) or (4) describing the fertilizer injectors numbers.

9.1.4 Complimentary information view

1. I/O – for more information go to Inputs & Outputs paragraph 8.3

01 S	🕔 Irrigation s	chedul	e lii	Progra	am visu	aliz	ation	-00)	Filters	5	🗳 A	nalog	y sen	sors	8	Hard	tware	com	muni	catior	0) Fe	ert & water meters
≓ A	to-size Show names																						
Line	1	MV1	FRT1	FRT2	FRT3	В	FLT1	FLT2	V1	V2	V3	V4 \	/5 V	6 V7	' V8	V9 1	V10	WM	FM1	FM2	FM3	DF	
Satel	lites	SAT1	SAT2																				
Indica	ation Contacts	CON1	CON2																				

2. Irrigation schedule – graphic view on the current day programs schedule.

÷.	1/0 (1) Irrigation schedule	Program visualization	Filte	ers 📔	Ana	alog sen	sors	The Hard	dware co	ommuni	cation	⊕ Fe	rt & wate	r meters													
Γ	11 February														Mon,	Feb 11											
	ID	Name		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	1 F	Program 2	1]								
	2	Program3																		_)					
	3	Lemon																									
	4	tomato																									
4]																							Þ

3. Program visualization - graphic view of a selected program.



4. Filters – a tab for viewing the filters backflush program, and manual operation by clicking on the right button of the mouse on the filter site and select Start flushing.

🚼 I/O	🕔 Irrigation schedule	Program	m visualization	-d ⁴ Filters	🔚 Ana	alog sensors	😤 Hardware o	communication	Fert	& water meters							
				Pre dwell (r	nm:ss)	Interval	(hh:mm)	Flush (n	nm:ss)	Dwell (n	nm:ss)	Flus	hing status			Count of	flushing cycles
Site	Name	Filters	DP level	Planned	Left	Planned	Left	Planned	Left	Planned	Left	Name	Filter	DP	Bytime	By DP	Consecutive loops by DP
Line 1	Local filter site 1	2			-	03:00	03:00:00	00:45	00:00	00:20	00:00	CLOSED		OFF	0	0	0



5. Analog sensors – viewing tab of the analog sensors readings.

81 I/O	🐧 Irrigation schedule 👔 Program vi	sualization 🚽 🚽 Filter	s 🛛 🖾 Analog sensors 🛛 😤 Hardware com	munication 🕔 Fert & water meters		
	Sensor site	Analog sensor	Name	Туре	Data source	Value
		1	טמפרטורה דרומי	Temperature	internal	14.304 (C)
	Default	2	לחות	Humidity	internal	93.312 (%)
		3	לחץ הפרשי	Differential pressure	internal	0.014 (atm)
						· · · · · · · · · · · · · · · · · · ·

6. Hardware communication – a tab for checking interfaces and RTU status, pointing on one of the RTU's will open a window with the elements connected to it, in the right side of the screen you can see an explanation for each one of the RTU colors.

(×		h.t							
₹å I/	t IIO 🕦 trigation schedule 👔 Program visualization 🐾 Hardware communication 🕔 Fert & water meters									
	Error countin	ng mode					States legend Low Bat Disabled Error Error+B	at OK		
Add	ess 1	Туре	Firmware	Parameter	State	RTU				
1		DC	0	16/8	ОК					
2	TWO	0_WIRE	0		RTU error	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18				

7. Fert & water meters – the following tab demonstrate the current flow of the water meters and fertilizers meters.

	🔁 I/O	🕔 Irrigation schedule	Program visualization	🐍 Hardware communication	🕔 Fert & water meters	
--	-------	-----------------------	-----------------------	--------------------------	-----------------------	--

ID	Name	Location	m3/h	Site	Fertilizer	L/h
VVM1	Line 1 water meter	Line	0.00	Fortaita	1	0.00
				reitsite	2	0.00



9.2 Creating new irrigation program (plan / irrigation programs)

To create a new irrigation program click on the **b** icon in upper left side of the **irrigation programs** screen, it will open the irrigation program Wizard.

The Wizard contains 9 steps:

Step 1 - Welcome: in the first step you can find relevant information of how to use the Wizard. After reading it once you can skip it the future.

	New Irrigation Program
Steps	Welcome
 Welcome Name Sequence Schedule Cycles Conditions Priority Completion option Done 	This wizard will guide you through the process of creating and/or modifying irrigation program. There are several steps outlined on the left. You can follow the steps as they are suggested as well as jump to any of the steps at any given time. Once you click 'FINISH' button the new Irrigation Program will be added to the list so that you can upload it to DREAM controller. Use Help pane on the left to obtain brief explanation about each of the individual steps
1 Steps Help	To continue, click Next < Back Next > Cancel

Pointers

1. In the **Help** tab you can find information of each step.





	New Irrigation Program
Steps	Name
1. Welcome 2. Name	Specify name of the program. It can be anything you like and will help you to easily distinguish amongst programs you manage.
 Sequence Schedule Cycles Conditions Priority Completion option Done 	Program name tomato
Steps Help	
	< Back Next > Done Cancel

Pointers

- 1. Write the desired name of the program.
- 2. Select ID (only in case you want to change it)
- 3. Help tab for more information.

<u>Note</u> – for moving between the steps you can use the **Back** and **Next**, or click directly on the desired step from the list.

Done – is for finish and save the irrigation program (even when it's not completed).

Cancel – for exiting the Wizard.



Step 3 - Sequence: selecting the valves and / or groups that will participate in the irrigation program.

	New Irrigation Program
Steps	Sequence
1. Welcome	Drop valves from the valve list into placeholders below. Use DELETE key for removing units, INSERT key to incert placeholders. CNTRL +LEETRICHT to reposition unit, right click many for medifying.
2. Name	Insert pracenoiders, CNTREFEET IRIGHT to reposition unit, right title mend for modifying.
3. Sequence	1.1 1.2 G1 1.7 G2 1.13 G3 1.15 1.14 1.12
4. Schedule	
5. Cycles	 Drag valves from here into the sequence above Use CTRL key for multiple selection.
6. Conditions	Line 1 (Irrigation 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
7. Priority	
8. Completion option	
9. Done	
	(1) Drag groups from here into the sequence above.
Stone Holp	
Steps Help	
	< Back Next > Done Cancel

Pointers

1. The valves or groups that appear in the irrigation sequence window are the ones that will participate in the irrigation program, by click and drag you can change the order of the valves. Removing valves is done by using the right click of the mouse on the selected valve or group.

When the program starts normally it will irrigate valve number 1.1 first, after it will finish, valve number 1.2 will open, after it will finish group number G1 and etc.

- 2. Adding valves to the irrigation sequence, click on one of the valves and drag it to the placeholder, as demonstrate with the red arrow.
- 3. Adding groups to the irrigation sequence, click on one of the groups and drag it to the placeholder, as demonstrate with the red arrow (the groups should be made before adding them to the program, please see **paragraph 9.4 Groups**).

Talgil Computing and control



Step 4 - Schedule: select in which day and time the program will start.



- 1. No schedule starting the program will be by manual activation.
- 2. **Schedule irrigation as run list –** selecting the day from the run list. (See below paragraph A)
- 3. Schedule irrigation by days selecting the day's interval. (See below paragraph B)



Paragraph A

	Modify irrigation program - tomato
Steps 1. Welcome 2. Name 3. Sequence 4. Schedule	Schedule Specify when and how the program should begin and finish. O No schedule () Schedule irrigation as run list () Schedule irrigation by days Right click on a day to specify what should be done on that day
5. Cycles 6. Conditions 7. Priority 8. Completion option 9. Done Steps Help	1 2 3 4 5 6 7 $F 8 W -$ $Do fertigation F 8 W -$ $Do water only Do single time activation Do single time activation Do nothing Do nothing 00 : 00 00 00 00 00 00 00 00 00 00 00 0$
	< Back Next > Done Cancel

The run list is a list of days that allows to choose if and how to irrigate in each day, the run list works like a cycle (after day 7 comes day 1) and can be modified from 1 day up to 16 (the run list length can be modified in **Constants** screen under **General** tab).

- 1. Right click on the box (____) under the day number will open a list of options:
 - **Do fertigation** the program will irrigate and give fertilizer according to the program dosage.
 - **Do water only –** the program will only irrigate, even if there is dosage of fertilizers.
 - **Do single time activation -** the program will irrigate and give fertilizers according to the program dosage, but only in this 7 days cycle, after this cycle will finish and the next one will begin it will not irrigate.
 - **Do nothing –** no irrigation in this specific day.
- **2.** Start time of the program, each program can have up to 6 different start time for each day.
- **3.** The box marked in red represents the current day.



<u>Paragraph B</u>

	Modify irrigation program - Programa - 1	×
Steps	Schedule	
1. Welcome	Specify when and how the program should begin and finish.	
2. Name 3. Sequence	○ No schedule ○ Schedule irrigation as run list	
4. Schedule		
5. Cycles	Irrigate every 02 💌 days Beginning in 01 💌 days	
7. Priority		-
8. Completion option	Start at (hh:mm) 08 : 37 Force stop at (hh:mm) 00 : 00	
9. Done		
Steps Help		
	< Back Next > Done Ca	ncel

Pointers

- 1. Start time of the program, each program can have up to 6 different start time for each day.
- **2.** The number 02 (for example) represents the interval between irrigation days; in this case the program will work one day yes and one day no.
- **3.** The number 01 (for example) represents the starting day of the program, in this case, the program will start tomorrow at 08:37 and will open again in the same day at 11:15, and again at 12:30,

After the last irrigation time, it will wait one day (because of the 2 days interval) without working, and will start again in the next day.

Talgil Computing and control



Step 5 - Cycles: selection of the number of cycles and the interval between them, in case it's needed to irrigate several times in each day.

Modify irrigation program - Programa - 1			
Steps	Cycles		
1. Welcome	Select cycling mode		
2. Name 3. Sequence 4. Schedule	Cycling by time Cycling by radiation		
 Cycles Conditions 	Define the number of cycles and the interval between the cycles.		
7. Priority	Number of cycles: 3 Left 2		
8. Completion option 9. Done	Interval (hh:mm:ss) 03:00:00 Left (hh:mm:ss) 01:30:00 1 2 3		
Steps Help			
	< Back Next > Done Cancel		

- **1.** The number 3 (for example) represent the number of wanted irrigation cycles.
- **2.** The interval is the time between each cycle, the interval time is from start to start, meaning that if the program starts at 8:00 the next cycle will start at 11:00 and the next one at 14:00.
- Left cycles lefts to finish the program.
 Left (hh:mm:ss) time left for the next cycle.



Step 6 - Conditions:

A) Selecting one of the following options allow starting / stopping / enabling / disabling the irrigation program, the conditions are being use in special cases when normal programing (start time and day, dosing by time volume....) is not enough.

	Modify irrigation program - Program - 4	×
 Steps 1. Welcome 2. Name 3. Sequence 4. Schedule 5. Cycles 6. Conditions 7. Priority 8. Completion option 9. Done 	Modify irrigation program - Program - 4 Conditions Use conditions for program operation Start by condition Stop by condition Enable by condition Disable by condition	×
Steps Help	< Back Next > Done (Cancel

Talgil Computing and control



B) After selecting to start, stop, enable or disable the program, a list of conditions will open, select the wanted condition from the list.

	Modify irrigation program - Program - 4		
Steps	Conditions		
 Welcome Name Sequence Schedule Cycles Conditions Priority Completion option Done 	Use conditions for program operation		
Steps Help			
	< Back Next > Done C	ancel	



B.1) Program is running / not running.

	X+¥ =?	Start by con	dition	
3	When Program	Program is running Programa - 1 (Programa - 1)	▼ ▼	2
5		Notification	For any period of time For any period of time For this period of time Apply changes Cancel	4

Pointers

- 1. When the condition will be active? In this case when program is running.
- 2. Which **program** should be running for the condition to be true? In this case programa-1.
- 3. Mark If you want to get **notification** when the condition takes place.
- 4. For any period of time means that if programa-1 is running the condition will take place.

For this period of time means that the condition will take place only if programa-1 will runs more than the selected time, for example: For this period of time **v** 00:30:00

5. Click on **Apply changes** to finish the condition setup.

<u>Short summary –</u> This irrigation program will start when **programa-1** (name of the program) will run more than 30 minutes.



B.2) Program is starting / ending.

	х+у =?	Start by condition	
3	When Program	Program is starting	2
4		Apply changes Cancel	

Pointers

- 1. When the condition will be active? In this case when program is starting.
- 2. Which program should be running for the condition to be true? In this case programa-1.
- 3. Mark If you want to get notification when the condition takes place.
- 4. Click on **Apply changes** to finish the condition setup.

<u>Short summary –</u> This irrigation program will start when **programa 1** (name of the program) is starting.

B.3) Contact is open / close

	×+¥		Start by condition		×	
3	When Contact	Contact is opened			•	2
5		□ Notification	Арр	For any period of tim For any period of time For this period of time oly changes Can	e 🔺 e cel	4

- 1. When the condition will be active? In this case when the contact is opened.
- 2. Which **contact**? In this case Contact 1.
- 3. Mark If you want to get **notification** when the condition takes place.
- For any period of time means that if Contact 1 is opened the condition will take place.
 For this period of time means that the condition will take place only if Contact 1 will be opened more than the selected time, for example: For this period of time

 Image: The selected time is period of tis period of time is period of time is period of time is peri
- 5. Click on Apply changes to finish the condition setup.



<u>Short summary –</u> This irrigation program will start when **Contact 1** (name of the Contact) will be opened more than 45 seconds.

B.4) Contact is opening / closing

	х+у =?	Start by conditi	ion	× (1)
3	When Contact	c ^e Contact is closing c ^e CON2 (Contact 2)	•	2
4		Notification	Apply changes Cancel	ן

Pointers

- 1. When the condition will be active? In this case when Contact is closing.
- 2. Which **contact**? In this case Contact 2.
- 3. Mark If you want to get notification that the condition is take place.
- 4. Click on **Apply changes** to finish the condition setup.

<u>Short summary –</u> This irrigation program will start when **Contact 2** (name of the Contact) is closing.

B.4) Water meter flow is higher / lower than

	x+y ≓?	Start by condition	×	
3	When 🕔 Water Water-meter 🐧 WM1 (Flow 20	meter flow is higher than Line 1 water meter)		2
6		tionApp	For any period of time For any period of time For this period of time ly changes Cancel	5

- 1. When the condition will be active? In this case when the flow is higher than 20.
- 2. Which water meter? The SAPIR 2 has only one water meter.
- 3. Flow in M3/H
- 4. Mark If you want to get **notification** when the condition takes place.
- 5. For any period of time means that if WM 1 flow rate is higher than 20 the condition will take place.



For this period of time - means that the condition will take place only if WM 1 flow rate is higher than 20 M3/h, and lasting more than the selected time, for example:

- For this period of time 💌 00 : 00 : 45
- 6. Click on **Apply changes** to finish the condition setup.

B.5) Sensor reading is higher / lower than

	×+y =?	Start by cor	ndition	
3	When Analog sensor Value	Sensor reading is higher the AS1 (Analog sensor 1)	han 💌	2
46		C Notification	For any period of time - For any period of time For this period of time Apply changes Cancel	5

Pointers

- 1. **When** the condition will be active? In this case when the Sensor reading is higher than 25.
- 2. Which Analog sensor? AS1.
- 3. Value of the sensor, the units is according to the sensor definition.
- 4. Mark If you want to get **notification** when the condition takes place.
- 5. For any period of time means that if sensor reading is higher than 25 the condition will take place.

For this period of time - means that the condition will take place only if sensor reading is higher than 25, and more than the selected time, for example: For this period of time v [00:00:45]

6. Click on **Apply changes** to finish the condition setup.

Talgil Computing and control



Step 7 - Priority: In case of a conflict between programs it will give a priority to the program with the higher priority number.

	Modify irrigation program - Program - 4
Steps	Priority
 Welcome Name Sequence Schedule Cycles Conditions Priority Completion option Done 	Program priority comes to play when program resources conflict with resources of other programs. Read Help on the left for more details.
	< Back Next > Done Cancel



Step 8 – completion option: enable the completion option will give automatically another try to complete the left quantity of a program that from some reason couldn't finish its water/time dosage.

	Modify irrigation program - Program - 4
Steps 1. Welcome 2. Name 3. Sequence 4. Schedule 5. Cycles 6. Conditions 7. Priority	Modify irrigation program - Program - 4 Completion option When a program has its "Completion" parameter set, it will try to complete its left quantities right after its last job termination. During operation of the program it may run into faults that will cause leaving the problematic job unfinished and skipping to the next. When reaching the end of the program the controller gives it another try and will pass through the uncompleted jobs trying to complete the left quantities. Completion option Disabled Disabled Enabled
 Completion option Done Steps Help 	
	< Back Next > Done Cancel

Step 9 – Done: select Done to save changes or Cancel to exit the wizard and discard changes.

<u>Note</u> – for water and fertilizers dosing go to paragraph **9.1.3** "Selected program water and fertilization status"



9.3 Evaporation

This screen demonstrates the evaporation of the last 16 days, the evaporation values can be inserted automatically if there is a weather station connected or manually by clicking on the dates and typing the evaporation of each day.



Irrigating according to the evaporation:

1. Select evapo(m3) or evapo(time) in the program water dosage method.

Valve state	С	Valve state	С
Current flow (nominal), m3/h	0.00 (80.00)	Current flow (nominal), m3/h	0.00 (80.00)
Water dosage method	evapo(m3)	Water dosage method	evapo(time)
Water dosage planned		Water dosage planned	
Water dosage left	0.00	Water dosage left	00:00:00
Water dosage calc	44.29	Water dosage calc	00:33:45

- 2. The controller will multiplay yesterday evaporation value with the valves area and the crop factor (as defined in **Constans/valves)**.
- 3. If the program contains several cycles, the water dosage per cycle will be calculated by dividing the daily calculated Water dosage by the number of cycles.



9.4 Groups

The groups screen allows creating groups of valves that will irrigate together.

۲		TALGIL Console, v3.2.1.7661		- 🖬 🗙
	🍯 Monitor 👩 Plan 📑 Analyze 🐼 Config 욿	Groups		🛞 Freeze 🕒
Send to target	Undo all changes			() Help
ID Name	S Line	Valves comprising the group	Group nominal flow m3/h	
1 G1	Line 1 (Irrigation line 1)	1, 2, 3, 4, 5	480.00	
2 G2	Line 1 (Irrigation line 1)	9, 10, 11	300.00	
1. N 2. A 3. L 4. T 5. T	Aame of the program. Add new group, after clicking on the Selection window with all the valve valves you want to add to the group. The valves that participating in the selection window will oper the group calculated flow rate.	the Add icon, a res will open, mark the oup. only one) e group, to edit an e valves box and the n.	300.00 G4 - Select group valves	5
			All None OK Ca	ancel



9.5 Satellites

Satellites are outputs that open simultaneously with other outputs.

र	TAL	GIL Console, v3.2.1.7661	_ 🗇 🗙
🗢 🙆 🔶 🦉	Monitor 👩 Plan 🔮 Analyze 🐼 Config 🕺	Satellites	SAPIR 🍪 Freeze 🧿
Send to target 🛛 🗳 Undo	all changes X Clear selected 2 Clear all Show names		🍫 Refresh 🔊 Help
ID Name	Outputs m	aking up the satellite	P− ■ Lines
1 Satellite 1	V1, V2, V3, V4		Image: Provide the second s
2 Satellite 2	V5, V6, V7		- C > MV1 (Main valve 1)
	2	3 4	

- 1. Satellite name.
- 2. The selected outputs that will open the satellite, for example: every time that one of the following outputs V5, V6 or V7 opens, satellite 2 will open as well.
- 3. To be able to select specific items from each category click on the original.
- 4. After opening the category, mark the desired outputs for the selected satellite.



9.6 Program library

The program library screen allows saving programs that are currently not in use, and when it's needed load them back to the controller. It is possible to create irrigation programs in the library or export them from the irrigation programs screen.

ζ							TALGIL	Console,	/3.2.1.7661			— — — <mark>—</mark> — —	1
-	Mor	itor 👩	Plan	🚑 Analyz	e	😳 Config 🛣			Pro	ogram library		🛞 Freeze 🔴	
	🔄 To target	Save	All 🖊 (Jndo All	Show	names							J
* ID Nam	e	St	ate	Completion	Priorit	y Schedule	Cycles	Cycles left	Interval	Interval left	Conditions	Sequence	
4 Library pro	ogram	In lit	orany	Disabled	0	No start time, [-]	0	0	00:00:00	00:00:00		1.1 ≥ 1.2	
8 Program	n-3	In lit	orany	Disabled	0	Start at 12:00:00, every 2-nd day,	0	0	00:00:00	00:00:00		1.1	
2 Program	n-2	In lit	orany	Disabled	0	Start at 09:00:00, every 3-rd day,	1 0	0	00:00:00	00:00:00		1.1 > 1.3 = 1.7	
Program - 2	1.1	1.3	1.7								/		İ
Water dosage method	m3	hh:mm:ss	hh:mm:ss										
Water dosage planned	100.00	00:00:00	00:00:00										
Water dosage calc	0.00	00.00.00	00:00:00										
	0.00												
	(2)								3	I	

- 1. Creating new program in the library, as long as it inside the library it won't be active.
- 2. **To target –** send the program to the irrigation programs screen, make it an active program.
- 3. Changing the screen display.



9.7 Back flushing

In case the filters are operated from the SAPIR 2, use this screen to program them. To set the Back flushing program insert the Planned Interval, Flush and Dwell.



- 1. Name of the local filter site.
- 2. The quantity of filters as defined in the configuration of the system (can't be changed in this screen).
- 3. Interval and left (time remaining to the next flush) time between flushes.
- 4. Flush and left (flush time remaining) time of each filter.
- 5. Dwell time, waiting time between the filters flushes.
- The flushing status indicates: Name - status of the irrigation CLOSED, IRRIGATING or FLUSHING. Filter - indicates which filter is currently flushing when a flushing sequence take place. DP - indicates if the DP contact is ON or OFF.
- Count of flushing cycles:
 By time how many flushing cycles occurred by time
 By DP how many flushing cycles occurred by DP.
 Consecutive loops by DP how many continues flushing occurred by DP.
- 8. Graphical layout of the flushing sequence.



9.8 Rain delay

For using rain delay, the user most have weather station or analog rain sensor, in addition this option must be defined in **Dealer Definitions**. The Rain limit is count on a daily basis and resets back to zero once a day. This option allows to stop irrigation for a few days in case of rain event.

Image: Second Control Image: Second Control </th <th>Image: Second Secon</th> <th></th> <th></th> <th></th> <th></th>	Image: Second Secon				
Rendo target Utho all thanges Rain delay Fost protection rrameter name Current setup Description and details 1 ain limit 50 00 Rain level in mm or inches that will trigger rain delay 1 ays of rain delay 3 Number of days to delay irigation due rain 1 ain delay fait 0 Led days of rain delay 1 ain delay status 0FF Rain delay is active 2 ain rain delay days 0 Total number of days with activated rain delay 2 ain contact 0 Total number of days with activated rain delay 2	Bendo target Undo at changes Randedry Fost protection arranded ranke S0.00 Rain levil in mm or inches that will trigger rain delay 1 yage of rain delay 3 Number of days to delay inglind use ain 1 tain delay lefi 0 Lefi days of rain delay 1 tain delay lefi 0 Lefi days of rain delay 1 tain delay tablas OFF Rain delay is active 2 tain delay days 0 Total number of days with activated rain delay 2 tain delay days 0 Total number of days with activated rain delay 2 tain contact 0 Total number of days with activated rain delay 2	Monitor	🔊 Plan 📑 Anałyze 🥸 Config 💥	Rain & Frost	🛞 Freeze
Name design Current setup Description and details arameter name 60.00 Rain level in mm or inches that Will trigger rain delay 1 ays of rain delay 3 Number of days to delay irrigation due rain 1 ain delay left 0 Left days of rain delay 1 ain delay status 0/FF Rain delay is active 2 easured daily rain 0/0 Amount of rain measured by the rain sensor during current day 2 ain contact 0 Tota number of days with activated rain delay 2	Aran teely Current selup Description and details Arain linit 50.00 Rain teels in rm or inches that will trigger rain delay 1 Vags of rain delay 3 Number of days to delay triggeton due rain 1 Valid of lay inf 0 Left days of rain delay 1 Valid of lay faith 0 Main delay is active 2 Valid of lay rain 0.0 Arain delay is active 2 Valid of lay rain 0.0 Arain delay with activated rain delay 2 Valid of lay days 0 Total number of days with activated rain delay 2 Valid contact 1 The contact that will trigger rain delay when the contact gets closed 2	Send to target			() H
ain limit 50.00 Rain level in mm or inches that will trigger rain delay ays of rain delay 3 Number of days to delay irrigation due rain 4 and 4 aley left 0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	tain limit 60.00 Rain level in mm or inches that will trigger rain delay 1 vays of rain delay 3 Number of days to delay intigation due rain 1 tain delay left 0 Left days of rain delay 1 tain delay stus 0/FF Rain delay is active 2 teasured daily rain 0.0 Amount of rain measured by the rain sensor during current day 2 tain delay days 0 Total number of days with activated rain delay 2 tain contact To contact that will trigger rain delay when the contact gets closed 2	arameter name	Current setup	Description and details	-
ays of rain delay 3 Number of days to delay ingation due rain ain delay left 0 Left days of rain delay ain delay status OFF Rain delay is active easured daily rain 00 Amount of rain measured by the rain sensor during current day 2 ain contact 0 Total number of days with activated rain delay 2	bays of rain delay 3 Number of days to delay inigation due rain clain delay left 0 Left days of rain delay bain delay status OFF Rain delay is active 2 sessured daily rain 00 Amount of rain measured by the rain sensor during current day 2 total rain delay days 0 Total number of days with activated rain delay 2 tain contact 0 Total number of days with activated rain delay 2	tain limit	50.00	Rain level in mm or inches that will trigger rain delay	1
ain delay left OFF Rain delay is active active daily rain delay status OFF Anound of rain measured by the rain sensor during current day tal rain delay days O Total number of days with activated rain delay and o Total number of days with activated rain delay and o Total number of days with activated rain delay when the contact gets closed O The contact that will trigger rain delay when the contact gets closed O Total number of days with activated rain delay when the contact gets closed O The contact that will trigger rain delay when the contact gets closed O The contact that will trigger rain delay when the contact gets closed O Total number of days with activated rain delay when the contact gets closed O The contact that will trigger rain delay when the contact gets closed O The contact that will trigger rain delay when the contact gets closed O Total number of days with activated rain delay the rain delay when the contact gets closed O The contact that will trigger rain delay when the contact gets closed O Total number of days with activated rain delay the rain delay when the contact gets closed O Total number of days with activated rain delay when the contact gets closed O Total number of days with activated rain delay when the contact gets closed O Total number of days with activated rain delay when the contact gets closed O Total number of days with activated rain delay when the contact gets closed O Total number of days with activated rain delay when the contact gets closed O Total number of days with activated rain delay when the contact gets closed O Total number of days with activated rain delay when the contact gets closed O Total number of days with activated rain delay of the days	tain delay left 0 Left days of rain delay tain delay status 0/FF Rain delay is active teasured daily rain 0/0 Amount of rain measured by the rain sensor during current day 2 tol rain delay days 0 Total number of days with activated rain delay 2 tain contact 0 The contact that will trigger rain delay when the contact gets closed 2	ays of rain delay	3	Number of days to delay irrigation due rain	
ain delay status OFF Rain delay is active easured daily rain 0.0 Amount of rain measured by the rain sensor during current day tal rain delay days 0 Total number of days with activated rain delay ain contact 1 Total number of days with activated rain delay	tain delay status OFF Rain delay is active tessued daily rain 0.0 Amount of rain measured by the rain sensor during current day 2 otal rain delay days 0 Total number of days with activated rain delay 2 rain contact The contact that will trigger rain delay when the contact gets closed 2	tain delay left	0	Left days of rain delay	
easured daily rain 0.0 Amount of rain measured by the rain sensor during current day 2 tain delay days 0 Total number of days with activated rain delay 2 ain contact The contact that will trigger rain delay when the contact gets closed 2	tessured daily rain 0.0 Amount of rain measured by the rain sensor during current day otal rain delay days 0 Total number of days with activated rain delay tain contact The contact that will trigger rain delay when the contact gets closed 2	tain delay status	OFF	Rain delay is active	
otal rain delay days 0 Total number of days with activated rain delay ain contact The contact that will frigger rain delay when the contact gets closed	on Total number of days with activated rain delay ain contact The contact that will trigger rain delay when the contact gets closed	easured daily rain	0.0	Amount of rain measured by the rain sensor during current day	$\sim (2)$
ain contact The contact that will trigger rain delay when the contact gets closed	ain contact The contact that will brigger rain delay when the contact gets closed	otal rain delay days	0	Total number of days with activated rain delay	
		tain contact		The contact that will trigger rain delay when the contact gets closed	

Pointers

Rain limit – the quantity of mm of daily rain to activate rain delay.
 Day of rain delay – to how many days should the controller delay the irrigation in case of rain delay activation.

Rain delay left – how many days are left to finish the irrigation delay. In case you defined 3 day of delay and you had rain delay you can change this number to make the delay shorter or longer.

Rain delay status – Off not active, On active.
 Measured daily rain – how much rain (Daily) was measured.
 Total rain delay days – number of days with rain delay.
 Rain contact – not active.



9.9 Frost protection

For using Frost protection, the user most have weather station or THD interface, in addition this option must be defined in **Dealer Definitions**. This feature is based on an algorithm that allows the user to insert the critical temperature for the crop and the controller will calculate the opening temperature of the selected program.

	TALGIL Console, v3.2	.1.7661	_ 🗇 🗡
🗣 😭 🔶 🦉 Monitor 👩 Plan 🔮 Analyze	Config 🛣	Rain & Frost	🛞 Freeze
Send to target Undo all changes			() Help
👌 Rain delay 🛛 😂 Frost protection			
Parameter name	Current setup	Description and details	
Critical temperature	-1 degrees C	The temperature that may harm the crop and must not be reached	1
Temp raise for stopping	3	Raise of temperature above starting point required for stopping frost protection	
Frost program number	5	The program to be activated for frost prevention	
Frost protection status	0ff	Frost protection is active	
Starting protection temperature	1.0	The temperature at which the frost protection will start	<u> </u>
Current temperature	24.0	Current temperature, applicable only when there is temperature sensor	
Current dew point	14.0	Current dew point, calculated at the weather station or THD	

- Critical temperature the temperature that may harm the crop.
 Temp raise for stopping insert the temperature that will close the program.
 Frost program number insert the frost protection program number.
- Frost protection status Off or On.
 Starting protection temperature the calculated temperature to start the program.
 Current temperature the reading of the Current temperature from the sensor.
 Current dew point the calculated current dew point.



10. Analyze

The following chapter deals with the tools to analyze the controller activities, consumptions, behavior and creating reports. it can be reached from the main menu or from the pull down bar.

TALGIL Console, v3.2.1.766	51		_ 🗇 🗙
llyze 🖉 Config	SAPIR		Freeze
Irrigation Programs Manage your imgation Manage your imgation Program Billion Manage your imgation Program Billion Manage Ilbrares of imgation programs	Analyze Analyze See what events and alarms were logged by the DREAM in the past or an ereports for deep data analysis with external tools. Deat reports for deep data analysis with external tools. Comptoing Analyze dairy contrumption of material dretilizer by irrigation organis Endog ensors See fretorical behavior of analysis behavior of analog sensors sensors Setting Setting Mende sattings for data	Configure Preferences User defined preferences for Inscription Office constant parameter Office constant parameter Define definitions Define and manage dealer Data cousistion Ostifiume hardware setup Office manage Maddy controller image Maddy controller image Ostifiume Ostifiume hardware setup Image Maddy controller image Ostifiume Ostifiume Maddy controller image Ostifiume Ostifiume Ostifiume Ostifiume Maddy controller image Ostifiume Ostifiume <t< th=""><th></th></t<>	
	 Tritigation Programs Adjust exploration to deter human Groups Groups Programs library Programs library Programs library Programs library Managa libraries of impation programs 	Image State Console v32.17661 Image State Console v32.17661<	<page-header></page-header>



10.1 Event log

The event log screen allows reviewing the controller activities and behavior, the screen consists of the activities list, calendar and filters to make the search of something specific easier.

τ				TALGIL Console, v3.2.1	7661			_ 🗇 🗙
-	Monitor (nan 🔮 A	knalyze 🥸 Config	💱 config 🕉 Event log 🚳 Freeze				
Reset	I► Run query	🔍 🔍 Type here to filter events 348 events, Australian Central Standard Time (South Australia)						
Show curre	nt month calendar	Туре	Time stamp	↓ Facility	-	Context	Subcontext 🗨	Message text 🔍
E onow care	nt monar culondur	 75 	5 06 Mar 13:15:02	System				SYSTEM RESTART
44.4	March 2019 + ++	(i) 31	1 05 Mar 19:31:14	Irrigatio	n	Program 2		Program finished irrigation
Sun Mon	Tue Wed Thu Fri Sat	(i) 30	0 05 Mar 19:31:14	Irrigatio	n	Program 2	Valve 1.11	Program valve closed
24 25	26 27 28 1 2	🙆 34	4 05 Mar 17:51:14	Irrigatio	n	Program 2	Valve 1.11	Detected low flow of 1 m3/h
3 4 10 11	5 6 7 8 9	(i) 29	9 05 Mar 17:31:14	Irrigatio	n	Program 2	Valve 1.11	Program valve opened
17 18	19 20 21 22 23	(i) 30	0 05 Mar 17:31:14	Irrigatio	n	Program 2	Valve 1.10	Program valve closed
24 25	26 27 28 29 30	🔕 34	4 05 Mar 15:51:14	Irrigatio	n	Program 2	Valve 1.10	Detected low flow of 1 m3/h
31 1	2 3 4 5 6	 29 	9 05 Mar 15:31:14	Irrigatio	n	Program 2	Valve 1.10	Program valve opened
		(i) 30	0 05 Mar 15:31:14	Irrigatio	n	Program 2	Valve 1.9	Program valve closed
Severity:	Any severity	🙆 34	4 05 Mar 13:51:14	Irrigatio	n	Program 2	Valve 1.9	Detected low flow of 0 m3/h
Facility:	Any facility	 29 	9 05 Mar 13:31:14	Irrigatio	n	Program 2	Valve 1.9	Program valve opened
Context type :	Any object 💌	 30 	0 05 Mar 13:31:14	Irrigatio	n	Program 2	Valve 1.8	Program valve closed
		🙆 34	4 05 Mar 11:51:14	Irrigatio	n	Program 2	Valve 1.8	Detected low flow of 0 m3/h
		 29 	9 05 Mar 11:31:23	Irrigatio	n	Program 2	Valve 1.8	Program valve opened
		(i) 30	0 05 Mar 11:31:23	Irrigatio	n	Program 2	Valve 1.7	Program valve closed
		🙆 34	4 05 Mar 09:48:23	Irrigatio	n	Program 2	Valve 1.7	Detected low flow of 0 m3/h
		 29 	9 05 Mar 09:28:23	Irrigatio	n	Program 2	Valve 1.7	Program valve opened
		(i) 30	0 05 Mar 09:28:23	Irrigatio	n	Program 2	Valve 1.6	Program valve closed
Subcontext type	e : Any object 💌	🙆 34	4 05 Mar 07:45:23	Irrigatio	n	Program 2	Valve 1.6	Detected low flow of 0 m3/h
		(i) 29	9 05 Mar 07:25:23	Irrigatio	n	Program 2	Valve 1.6	Program valve opened
		(i) 30	0 05 Mar 07:25:23	Irrigatio	n	Program 2	Valve 1.5	Program valve closed
		(3 4	4 05 Mar 05:45:47	Irrigatio	n	Program 2	Valve 1.5	Detected low flow of 0 m3/h
		 29 	9 05 Mar 05:25:47	Irrigatio	n	Program 2	Valve 1.5	Program valve opened
		 24 	4 05 Mar 05:25:47	Irrigatio	n	Low tank level pause DO NOT DE.		Program stopped by condition
		 30 	0 05 Mar 05:25:47	Irrigatio	n	Low tank level pause DO NOT DE.	Dummy valve	Program valve closed 🔍



pointers

- 1. Free text to filter events.
- 2. Colmns filters, press on the filters icon and select from the list.
- 3. Export the list to Excel file or Refresh.

Talgil Computing and control



pointers

- 1. **Run query –** after selecting the dates and filters (if needed), click on it to run the search.
- Mark the daisered date on the calender, if you need several days click and drag. The red scuere represents the current day.
- 3. Search filters to find error or information, in specific program, device ,site.....





10.2 Data reports

The Data reports perspective is the place where the user may define formatted documents by which various reports may be generated. There can be various types of reports: **Consumption** reports, **Raw data** reports or **Event log** reports.



pointers

- 1. Range selection for manually generated reports.
- 2. List of defined reports.
- 3. Tool bar :
 - After selecting a report from the list and the required day/s click on Image: Run manually
 - To create a new report click on Add new (explanation of the report wizard is in the next page).
 - To edit an existing report click on the report and then click on Section
 - To duplicate existing report click on

 <u>Implicate</u>
 - To delete report, mark it and click on KREMOVE
 - To delete all the reports click on Clear all
 - To refresh the page click on Refresh
 - To change the screen display click on EEEEEEE



10.2.1 Creating new report

To create new report click on Add new	🐈 Add new	to open the reports
wizard. The wizard contain 6 steps:		

Step 1 – name: giving a name to the report.

đ	Report4
Steps	Report name
 Name Type Target Parameters Schedule Delivery 	Report names are for management purpose only, try to give descriptive names to reports because they will appear in the list of your reports, their output and email if report is scheduled. Report name: Report4 2
	3 < Back Next > Finish Cancel

- 1. The steps of the report wizard, click on the desired step to reach it directly.
- 2. Type the desired report name.
- 3. Move between the wizard steps, and finish or cancel the report configuration.



Step 2 – Type: selecting the report type, there are 3 types of reports: **consumption**, **raw data** and **evet log.** Each type of report has different parameters screen. (look in the Step 4 – parameters)

đ	Report4
Steps	Report type
1. Name 2. Type 3. Target 4. Parameters 5. Schedule 6. Delivery	There are several types of report you may select from the list below. Changing report type will affect other parameters you may have specified, but it will not affect report schedule. Consumption report Accumulation report Raw data report Event log report This should be an aggregated report 2
	< <u>Back</u> Next > Finish Cancel

Pointers

1. Select the required report type:

Consumption report – consumption of valves, groups and water meter.

Raw data report – creating reports from selected data.

Event log report – creating reports of system events.

2. Selecting this option will allow creating mixed consumption report.



Step 3 – Target: this screen is for selecting the controller in case there is more then one.

đ	Report5
Steps	Report target
1. Name 2. Type 3. Target 4. Parameters 5. Schedule 6. Delivery	Reports is always based on data from specific controller. Select your controller here from the list below. Changing the value may affect the rest of report parameters. Select target: SAPIR, 81269481
	< Back Next > Finish Cancel

Pointers

1. Select the desired controller from the list



Step 4 – Parameters: the parameters screen is for selecting what will appear in the report. There 3 types of reports (see step 2) each type has its own parameters screen:

Consumption



- Type select the parameter type from the list.
 Rate select the time rate.
- For example, if you chose Type Valves, select the desired valves from the list. If you chose valves group, mark the desired group in the list. Do the same for Crops and Plots if nothing appears check again your configuration in Analyze / Settings.
- 3. Mark if it's necessary, make sure to define the valves area (in **constants**), and the NPK (in **Analyze / Settings**).



Raw data

Ĵ	Report5 ×
Steps	Report parameters
1. Name	
2. Type	SAPIR, 81269481
3. Target	- 🗆 📼 Battery
4. Parameters	♀- ■ ↓ Irrigation programs
5. Schedule	- V Programa - 1 (Programa - 1)
6. Delivery	- Constant 2 (Frogram - 3)
	🗆 🔲 💦 Program - 4 (Program - 4)
	🖉 🗆 💭 Lines
	🖗 🔳 💭 Analog sensors
/	- V St (Analog sensor 1)
	E AS2 (Analog sensor 2)
	e-
	- Contact 1)
	🖳 📈 🝰 CON2 (Contact 2)
	🗢 🔟 📁 Conditions
	🖉 🗆 💭 Interfaces
	🕹 🗌 💭 Valve Groups
$\left(\begin{array}{c} 2 \end{array} \right)$	
	< Back Next > Finish Cancel

- 1. To be able to select specific items from each category click on the original.
- 2. Select the parameters that will appear in the report.



Event log

đ	Report5				
Steps	Report parameters				
 Name Type Target Parameters Schedule Delivery 	Severity: Facility: Facility: Context type : Programa - 1 (Programa - 1) Program - 2 (Program - 2) Program - 3 (Program - 3) Program - 4 (Program - 4)	2			
	Subcontext type :	3			
	< Back Next > Finish Cancel				

- Severity select between Error, Info or any severity (Error and Info).
 Facility select from the list the facility according the report you want to produce.
- 2. Select the context type and mark in the list below the required items for the report.
- 3. Select the Sub context type and mark in the list below the required items for the report.



Step 5 – schedule: the schedule step allows defining when to send the automated reports.

1	Report5
Steps	Report schedule
1. Name 2. Type 3. Target 4. Parameters 5. Schedule 6. Delivery	Report may optionally be scheduled to run at certain times with certain recurrence. Results of scheduled job will be an email containing attachment with generated data. Hourly, daily, weekly, monthly and annual reports are fired at the end of the corresponding period and automatically cover specified data range. For example, monthly report will be fired at the end of each month and cover entire previous month. With custom reports, users can specify when to run the report and how many hours of data to cover.
	< Back Next > Finish Cancel

Pointers

1. Select when to receive the reports:

Not scheduled – the report won't be sent automatically.

Daily – the report will be sent every day, in the end of the day.

Weekly – the report will be sent every week, select when the starting day of the week.

Monthly - the report will be sent every end of month.

Annual - the report will be sent every end of year.

Custom – the report will be sent according to start time hour's coverage.

2. After selecting **Custom** define the start time, and the hours coverage of the report.



Step 6 – Delivery: define the users who will receive the automated report.

Ĵ	1піт Х
Steps	Report delivery
 Name Type Target Parameters Schedule Delivery 	Delivery parameters define report format and distribution methods. Scheduled reports without complete delivery options are kept in the system but not executed. However, these reports can be executed manually. None Email to target users Upload to remote location Report format: Excel worksheet Excel worksheet mail1 (mazeed.n66@gmail.com) yasur1 (ariekoren62@gmail.com) yasur2 (alonmord@gmail.com)
	Subject: < <u>Back</u> <u>Next</u> > <u>Finish</u> Cancel

- None the report won't be sent to anyone.
 Email to target users the report will be sent to the selected controller users.
- Recipients Select from the email list who will receive the report.
 Subject enter the subject of the email.



10.3 Consumption

The Consumptions perspective supplies tools that help analyzing the information accumulated in the data base about the water and fertilizers consumed by the Valves, Crops and Plots in the system (Crops and Plots will be available only if wore configured in Analyze/Settings).



Pointers

- 1. Select the time range and consumption rate.
- 2. Select the items by drag and drop to the graphic view pane.
- 3. The Toolbar allows changing the screen display, exporting the data to an Excel sheet and seeing values **per Area**.
- 4. Graphic view pane.

When placing the mouse on the graphic pane values a list of the items, their values and the measuring time will appear.



10.4 Irrigation performance

The Irrigation performance perspective supplies various tools for analyzing historical data of activities in the system. The selected items activities along the given time span, are presented in a graphical view, enabling to put one against the other for example the starting and stopping of irrigation programs, opening and closing of valves, starting and stopping of pumps, etc. Additionally statuses of digital inputs, statuses of defined conditions, statuses of RTUs and the status of the battery can also be presented in the graph.



Pointers

- 1. Select the date or range (click and drag).
- 2. Select the items by drag and drop to the graphic view pane.
- 3. The Toolbar allows changing the screen display and exporting the data to an Excel sheet.
- 4. Graphic view pane.

When placing the mouse on the graphic pane a list of the items, their values and the measuring time will appear.



10.5 Analog sensors

The specialty of the Analog sensors perspective is that it can be divided into 1-5 charts, each chart with its own axes, this enables placing one against the other, sensors with highly different range of values without causing the lower values to become nearly flat line compared with the high values of the other sensor.



Pointers

- 1. Select the date or range (click and drag).
- 2. Select the items by drag and drop to the graphic view pane, you can sort the list by types or sites.
- 3. The Toolbar allows changing the screen display and exporting the data to an Excel sheet.

In order to choose the quantity of charts use the list in the left side of the Toolbar

4. Graphic view pane.

When placing the mouse on the graphic pane a list of the items, their values and the measuring time will appear.



10.6 Analysis Settings

The Analysis settings are used to divide the valves by Crops and Plots, as well as determine the NPK values of the fertilizers to be able to know how much NPK was supplied to each Valve, Crop and Plot.

<u>Seasons</u>

Seasons Seasons Seasons are time periods used in Analysis, in order to define the period during which spectrops and plots were associated with particular valves, or fertilizer types with injectors. Crops Crops Piots Fertilizers Analog Sensors Comparison of the period during which spectrops and plots were associated with particular valves, or fertilizer types with injectors. Season name Season starting date I I I I I I I I I		oni 1, 81269481 Analysis Settings	Lazzaroni 1,	۲
Crops Crops Plots Fertilizers Mar 17, 2019 ' Analog Sensors Crops Crops Plots Crops		ed in Analysis, in order to define the period during which specific ted with particular valves, or fertilizer types with injectors.	Seasons Seasons are time periods used in A crops and plots were associated wit	Seasons
Crops Plots Fertillizers Mar 17, 2019 / Fertillizers Analog Sensors	Season ending date	Season starting date [↑] 1 Season	💊 Season name	9
Plots Fertilizers Mailog Sensors	Oct 1, 2019	Mar 17, 2019 Oct 1	Season 1	Crops
		2		Plots Fertilizers Malog Sensors

- 1. Click on the 📄 icon to add new season and insert the season name, the correlation between valves, crops and plots may be dynamic and can change from one season to another, that why we should make this definition.
- **2.** Set the time range of the season.



<u>Crops</u>



Pointers

1. Click on the icon to add new Crop and insert the Crop name. To edit the Crop name use the si icon.

To delete Crop click on 🔀

To delete all click on 🔟

- 2. Select the season (according to what you defined in Seasons), and mark the relevant valves.
- **3.** Edit, delete or delete all.



<u>Plots</u>

۲	Lazzar	roni 1, 81269481 A	nalysis Settings		
© Seasons	Plots ₽ 🛠 🖉		Defining seasona	l links between objects	
	Plot 1 mango	Location	Object	Name	∾ Season
Crops	🏴 Plot 2 avocado	Line 1	V6	Valvola 6	Season 1
		Line 1	V7	Valvola 7	Season 1
		Line 1	V8	Valvola 8	Season 1
Plots		Line 1	V9	Valvola 9	Season 1
		Line 1	V10	Valvola 10	Season 1
Fertilizers		Line 1	V11	Valvola Spurgo	Season 1
Analog Sensors		2		ngle season to an arbitrary ason 1 (Valvola 1) (Valvola 2) (Valvola 3) (Valvola 3) (Valvola 4) (Valvola 5) (Valvola 6) (Valvola 6) (Valvola 8) (Valvola 8) (Valvola 8) (Valvola 9) 0 (Valvola 9) 0 (Valvola 9) 1 (Valvola Spurgo)	number of

- Click on the icon to add new Plot and insert the Plot name. To edit the Plot name use the icon. To delete Plot click on X To delete all click on Z
- 2. Select the season (according to what you defined in Seasons), and mark the relevant valves.
- 3. Edit, delete or delete all.



Fertilizers

۲.	Lazza	aroni 1, 81269481 A	nalysis Settings		
© Seasons	Fertilizers		Defining seasonal	links between object	s ux2
Crops	Arimonium Nitrate	Location Local fertilization si	Object FRT1	Name Pompa Fert.	logo Season Season 1
Plots					
Fertilizers		Eertilizer type	er type		3
Analog Sensors		Gravity (g/cc)	1.21		
	2	Nitrogen (%)	6.00 1.00 3.00	Associate si objects.	ngle season to an arbitrary number of
		Phosphorus (coefficient) Potassium (%)	9.00	Season 🕔 Sea Docal fertil	ason 1 ization site 1 FRT1 (Pompa Fert.) ization site 1 FRT2 (Local fert 1.2)
			OK Cancel	All Non	e OK Cancel
				.	ОК

- Click on the icon to add new Fertilizer. To edit the Fertilizer settings use the icon. To delete Plot click on icon
 To delete all click on icon
- **2.** After adding new fertilizer fill the following chart according the fertilizer characters, clik on OK for the next step.
- **3.** Select the season (according to what you defined in Seasons), and mark the relevant fertilizer injector, the reason for it is to associate between the fertilizer type and fertilizer injector.
- **4.** Edit, delete or delete all.



Analog inputs



- 1. Serial number, Type and Units of the analog sensor.
- 2. Insert Low / Top mark values, and give them names in order to have thresholds.
- 3. Site of the analog sensor.

