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The Climate

Hot water heating

The menu buttons:

Info button and manual action

View the influences on the heating water temperature calculation

View the influences on the calculation of the heating 3-way valve position

View the details of the heating control calculation.



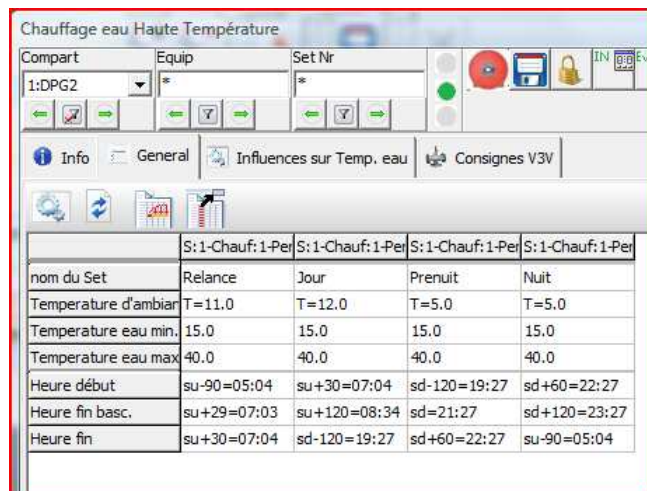
Heating sets and configurations

Temperature settings

The main menu for temperature setpoints can be configured according to the desired control strategy

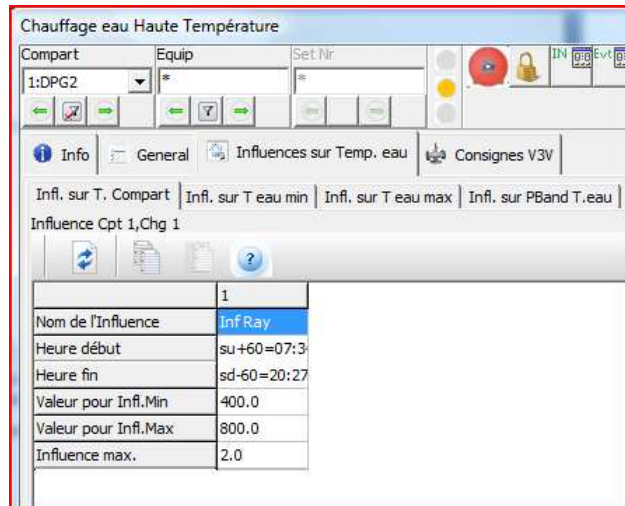
The fixed programming lines can be programmed by default and hidden.

It is also possible to add the following setpoint: 'Ambient temperature delta stops heating'.



Influences

It is possible to program the following influences on the calculated water temperature; on the minimum /maximum water temperatures; on the Proportional band of the calculation of heating water temperature.



3-way valve settings:

The menu allows you to set a working period together with minimum and maximum positions of the 3-way valve during this period.

Influences relating to the 3-way valve

It is possible to program the following influences: on the calculated heating water temperature; on the minimum /maximum positions of the 3-way valve; on the Proportional band of the calculation of the position of the heating water 3-way valve.

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Configuration of the 3 Way valve and pump

Inversion of valve control when at rest.

In certain specific cases it is possible to control the valve to be open when at rest, once the pump has stopped. (See the installation requirements).

3-way valve position event linking

Linking the position of the 3-way valve to a particular event means it is possible to influence the operation of the equipment concerned.

Compart	Temp.	Chauffage	T. Chauffage	V3V	Pompe
1:DPG2	26.9	Chg DPG2	0.0	0.0	OFF
2:DPG3	27.2	Chg DPG3	0.0	0.0	OFF
3:Tri 123	25.7	Chg Tri 123	0.0	0.0	OFF
4:T5	24.6	Chg T5	0.0	0.0	OFF
5:Multi GRV	26.5	WH1	0.0	0.0	OFF

Afdeling 1/1	
Water Heater Name	Ondernet
Output Plus Name	1:Mengklep 1+
Output Plus Number	69
Output Minus Name	1:Mengklep 1-
Output Minus Number	70
Name Output Pump	1:Cir pomp 1
Nr Output Pump	11
Reverse Pump Output	0:No
Input Stop Pump	0
Input Start pump	0
Reverse 3WV Output on 0%	0:No
Event 3WV pos Name	Event 3WV nr:1
Event 3WV pos Number	0
Event TCalc Name	Event TCalc nr:1
Event TCalc Num	0
Event WTCalc Name	Event WTCalc nr:1
Event WTCalc Num	0

Synchronisation of the 3-way valve

It is possible to synchronise manually the position of the 3-way valve to a value of zero through the V3V info menu (manual button on the Info page).

Synchronisation of the 3-way valve to zero occurs each time the program is restarted.

Parameters

‘Number of days before refresh’ allows you to program the operation of the 3-way valve and pump so as to prevent any seizure due to an extended period of inactivity. The refresh works as follows: at 12h00 and with the pump OFF, the valve opened for one minute followed by two minutes of control to close. The pump is then turned ON for one minute.

Boiler safety

Each valve may be assigned to a boiler, its control tracking the boiler temperature. In the case of a boiler reaching its safety temperature – ‘Open/close 3WV’ – the valve responds by going to the programmed max/min position.

Pump Start/Stop

‘Ambient temperature difference start pump’: this setting starts the pump as soon as the ambient temperature drops by a value equal to this delta above the ambient heating temperature.

‘Temperature difference heating water/ambient temperature’: this setting starts the pump as soon as the calculated water temperature increases by this delta value above the ambient temperature set point (see humidity influence).

Def,Ti,TSubst: select 0, 1, 2 either you want to control the heating with the default input (0) set in the pid, or with the ambient temperature (1) of the compartment, or with the substrat temperature (2) of the compartment.

Reduction/Increase with thermal screens

It is possible to:

Reduce the calculated heating water temperature when the thermal screen deploys.

Increase the calculated heating water temperature when the thermal screen closes.

(See Thermal screen settings).

Heating pump

The heating pump is always ON when the 3-way valve is open.

Whenever conditions causing the pump to stop become valid, the ‘pump ON hold time’ setting specifies a time interval before the pump actually stops.

The output inversion setting implements a required safety standard relating to greenhouse heating installations.

‘Stop pump input’ allows you, for example, to link the status of a safety event as an input to control the action of the pump.

Heating cut-off with an ambient temperature delta

For certain working strategies the water temperature calculation can be set to zero when the ambient temperature reaches a delta (difference) from the heating temperature. If the entered

Param	
	Afdeling 1/1
Time Remain Pump ON	00:10:00
Days Before Refresh 3WV	0
Nr boiler Close 3WV	1
Nr boiler Open 3WV	1
Max on 3WV Closing	1
Min on 3WV Opening	40
Dif. Ambient Start Pump	0.5
Dif. Water/Ambiant Start Pump	7.5
Water Temp reduction on Scr Sw On	20.0
Water Temp incr. on Scr Sw Off	2.0
Max W.T. Incr on Scr Sw Off	30.0
D.Temp Set 0 on Min Water	0.0
0:Def,1:Ti,2:TSubst	0
Nr Set infl O/s T.	0:None
Nr Set infl Rad.	0:None
Nr Set Infl Rad Sum	0:None
Nr Set Infl Hum	0:None
Basc on T. only	0:No
Active conditions pump	0:No

delta is greater than zero in this menu, the value applies across all periods. If the entered value is zero in this menu, it is possible to set a different value for each period in the ambient temperature set points menu.

Chauffage eau Haute Température

Compart	Equip	Set Nr																											
1:DPG2	*	*																											
<div style="display: flex; justify-content: space-between;"> Info General Influences sur Temp. e </div>																													
<table border="1"> <thead> <tr> <th></th> <th>S:1-Chauf:1-Per</th> <th>S:1-Chauf:1-</th> </tr> </thead> <tbody> <tr> <td>nom du Set</td> <td>Relance</td> <td>Jour</td> </tr> <tr> <td>Temperature d'ambiar</td> <td>T=11.0</td> <td>T=12.0</td> </tr> <tr> <td>Temperature eau min.</td> <td>15.0</td> <td>15.0</td> </tr> <tr> <td>Temperature eau max</td> <td>40.0</td> <td>40.0</td> </tr> <tr> <td>D.T. calcule 0 pour Te</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>Heure début</td> <td>su-90=05:00</td> <td>su+30=07:00</td> </tr> <tr> <td>Heure fin basc.</td> <td>su+29=06:59</td> <td>su+120=08:1</td> </tr> <tr> <td>Heure fin</td> <td>su+30=07:00</td> <td>sd-120=19:3</td> </tr> </tbody> </table>				S:1-Chauf:1-Per	S:1-Chauf:1-	nom du Set	Relance	Jour	Temperature d'ambiar	T=11.0	T=12.0	Temperature eau min.	15.0	15.0	Temperature eau max	40.0	40.0	D.T. calcule 0 pour Te	0.0	0.0	Heure début	su-90=05:00	su+30=07:00	Heure fin basc.	su+29=06:59	su+120=08:1	Heure fin	su+30=07:00	sd-120=19:3
	S:1-Chauf:1-Per	S:1-Chauf:1-																											
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<table border="1"> <thead> <tr> <th></th> <th>C:1-N:1</th> <th>C:2-N:1</th> </tr> </thead> <tbody> <tr> <td>Poursuit Chg numero</td> <td>0</td> <td>0</td> </tr> <tr> <td>Teau pour démarrer</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>Teau pour arrêt</td> <td>0.0</td> <td>0.0</td> </tr> </tbody> </table>				C:1-N:1	C:2-N:1	Poursuit Chg numero	0	0	Teau pour démarrer	0.0	0.0	Teau pour arrêt	0.0	0.0															
	C:1-N:1	C:2-N:1																											
Poursuit Chg numero	0	0																											
Teau pour démarrer	0.0	0.0																											
Teau pour arrêt	0.0	0.0																											

Heating follow-on

For certain installations it is possible for one heating to follow-on when another heating reaches a threshold value of calculated water temperature, and then to stop when the calculated value falls again.

Vents function :

	Dept 1	Dept 1
Vent Name	Vent1	Vent2
Set in Use	Pre Night	Pre Night
Orientation	Lee	Wind
Calc T.	28.0	30.5
Meas T.	27.6	27.6
Calc Pos.	0.0	0.0
Meas Pos.	0.0	0.0
Min Calc Pos.	0.0	0.0
Max Calc Pos.	100.0	40.0
Security	Synchro:[22:47:03]/	Synchro:[22:47:03]/
Humidity Meas.	37.0	37.0
Output	.	.
Meteo Inf. T		
Meteo Inf. Pmax		
Meteo Inf. Kpmax	[O/s T Set 1]=%100.0	[O/s T Set 1]=%100.0

Vents function could be configured to be used very simply, but also it can be configured to fine tuning your venting function.

So depending your configuration, you can see more or less things displaying in those table, or explained in this chapter.

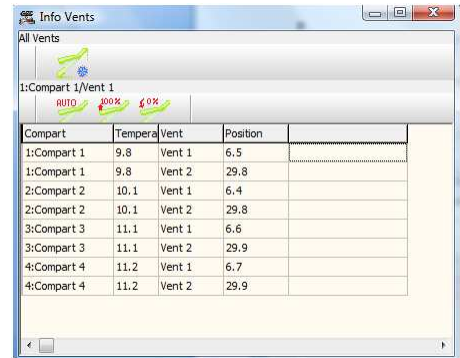
Advanced reading, offer the possibility to see more details on calculating, on timing and reacting of the vents.

	Compart 1	Compart 1
Vent Name	Vent 1	Vent 2
Set in Use	Night	Night
Orientation	Wind	Lee
Vent Temp Set	21.0	T=20.0
Slope Incr	0.0%	0.0%
Inf On Vent T.	0.0	0.1 [I. Nr 1]=0.1
Calc T.	21.0	20.1
Meas T.	9.8	9.8
Calc Pos.	0.0	0.0
Meas Pos.	6.5	29.8
Min Set Position	0.0	0.0
Inf On Min Position	0.0	0.0
Min Calc Pos.	0.0	0.0
Max Set Position	40.0	50.0
Inf On Max Position	0.0	0.0 [Inf Wind]=0
Max Calc Pos.	40.0	50.0
Vent P.Band Set	7.0	5.0
Inf On P.Band	0.0	0.0
Calc P.Band	7.0	5.0
Security	[Safety Set 1]	[Safety Set 1]
Humidity Meas.	78.7	78.7
Hum. max	95	95
Hum., Temp. min	3.0	3.0
Hum. min.	40	40
Hum., Temp. max	7.0	7.0
Hum. Type	OFF	OFF
Hum. Status	no inf.	no inf.
Hum. Counter	00:00:00	00:00:00
Output	--	--
Next Calc at	22:44:29,1.0	22:44:28,1.0
WindDir. Commut. Inte	00:18:05	00:18:05
Time next Commut	22:58:04	22:58:04
Time last openng	00:00:00	00:00:00
Time last dosng	22:40:24	22:40:24

Manual operating on Vents

For 'All Vents', it is possible to proceed to a manual synchronization.

Now for the line selected witch correspond to a Compartment and a vent, it is possible to switch between 'Auto' (automatic control), '100%' that force the vents to open completely, and '0%' that force the vent to close completely.



Main Vents Settings

Vents are controlled primary in temperature. This control is made with a (P. Band) regulation. A lot of constraints are applied on this regulation.

Mainly, the users program a temperature to open the vents. Over the set temperature, the vent starts to open. The P. Band is the delta degrees to let the vent open to 100% (or maximum) opening.

	Compartment 1/Vent 1	Compartment 1/Vent 1
Set Name	Day	Night
Vent Temperature	T=18.0	T=20.0
Min position	0.0	0.0
Max position	100.0	50.0
Vent Delta T, WindSide	1.0	1.0
Min position	0.0	0.0
Max position	60.0	40.0
Time Begin Set	SU-60=06:37	SD-60=18:27
Time End Slope	SU-30=07:07	SD-30=18:57
Time End Set	SD-60=18:27	SU-60=06:37
PBand Lee side	5.0	5.0
PBand Wind side	7.0	7.0

When the vent1 is programmed, in situation of double venting, the vent2 take the other side that vent1 is calculate.

The wind side temperature to open can be programmed as a fixed temperature or as a delta from the Lee side opening temperature.

Periods time end Slope is the time that the slope between period changing is ended. "Time End Set" has to be programmed in default to time begin of the next period. This can be set by administrator settings.

N.B.: some lines may be hiding by Administrator configuration

Influences on Vents

There is different kind of influences that can be set on the vents : Influences depending (Lee , Wind) side, on Calculated temperature, on Minimum Vent position, Maximum Vent position, "P. Band" degrees.

Page "Influences" :

In the example below, we can read that from midnight to midnight, when vents are in lee or wind side, the selected input (substrate temperature) influence the calculated vent temperature for 2°C if vent is on lee side and 3 °C if vent is on wind side.

	1	2
I. Name	Ground T. Influence Calc.T.	Ground T. Influence Calc.T.
Time Begin Set	FT=00:00	FT=00:00
Time End Set	FT=23:59	FT=23:59
Infl.Min	15.0	15.0
Infl.Max	12.0	12.0
Infl.Value	2.0	3.0
Infl Param	Lee	Wind

NB: here the influence is by vent and by vent side

Outside Temp influence

in the example below, the influence will be common to all vent where the parameter influence on O/s temp is set to the 'O/s T Set 1'. (see Vent parameter)

We can read that the influence can be switch ON/OFF. Activate between Time begin to time end. Now Lee side and wind side are on the same colon, and can be programmed separately. From T° begin to temp max influence, it is possible to +/- the calculated temperature, fix a maximum opening, and +/- the calculated Pband.

Set Nr	1
Set Name	O/s T Set 1
Activation	1:Yes
Time Begin	SD-20=19:04
Time End	SU+60=08:38
O/s T. begin Infl Lee	8.0
O/s T. max Infl Lee	-5.0
Max Inf /T.Calc Lee	2.0
Max Position Lee	10.0
Max Inf /PBand Lee	3.0
O/s T. begin Infl Wind	8.0
O/s T. max Infl Wind	-5.0
Max Inf /T.Calc Wind	2.0
Max Position Wind	10.0
Max Inf /PBand Wind	3.0

Direct Radiation influence

In the example below, the influence will be common to all vents where the parameter influence on Radiation temp is set to the 'RadSet1' (see vent parameter)

We can read that the influence can be switch ON/OFF, activate between Time begin and time end. Now Lee side and wind side are on the same colon, and can be programmed separately. From Radiation begin to Radiation max influence, it is possible to +/- the calculated temperature, fix a maximum opening, and +/- the calculated Pband.

SetNr	1
Set Name	Rad Set 1
Activation	1:Yes
Time Begin	SD-20=19:04
Time End	SU+60=08:38
Rad. begin Infl Lee	400.0
Rad. max Infl Lee	600.0
Max Inf /T.Calc Lee	-1.0
Max Position Lee	100.0
Max Inf /PBand Lee	-2.0
Rad. begin Infl Wind	400.0
Rad. max Infl Wind	600.0
Max Inf /T.Calc Wind	-0.5
Max Position Wind	100.0
Max Inf /PBand Wind	-1.0

Humidity influence

In the example below, the influence will be common to all vents where the parameter Humidity influence is set to the 'Hum Set1' (see vent parameter)

We can read that the influence can be switch ON/OFF, activate between Time begin and time end. Now Lee side and wind side are on the same colon, and can be programmed separately.

In case of high Humidity detected, there is a waiting time before that the influence start, this offer the possibility to heating to start and wait to the reaction t will be. After this time delay, the min position of the vent will be set to the influence of humidity till the maximum opening, and that ambient temperature still higher than temperature limit (Temp min for Humd max control).

In case of low humidity detected, the max opening will be reduced for the maximum influence.

SetNr	1
Set Name	Humd Set 1
Activation	1:Yes
Time Begin	SD-20=19:04
Time End	SU+60=08:38
Time Before Start Infl	00:05:00
Time max infl. On	00:30:00
Time min pause	00:10:00
Humd Max	95
Perc Infl Lee by Humd	1.5
Max Influence	5
Perc Infl Wind by Humd	0.5
Max Influence	2
Temp min for Humd max control	T-2.0
Cascade Lee/Wind	0:No
Humd Min	40
Perc Infl Lee by Humd	0.0
Max Influence	10
Perc Infl Wind by Humd	0.0
Max Influence	20
Temp max for Humd min control	T+2.0

Outside temperature, Wind speed, outside humidity, can increase/reduce the max opening on high Humidity.

Set Nr	1
O/s T. I.Min Max Vent	5.0
O/s T. I.Max Max Vent	-2.0
O/s T. Inff Max Leeseide	-5.0
O/s T. Inff Max Windside	-10.0
Wind Speed I.Min Max Vent	30.0
Wind Speed I.Max Max Vent	40.0
Wind Speed Inff Max Leeseide	-5.0
Wind Speed Inff Max Windside	-20.0
O/s H. I.Min Max Vent	92.0
O/s H. I.Max Max Vent	95.0
O/s H. Inff Max Leeseide	7.0
O/s H. Inff Max Windside	-20.0

Vents parameters

	C:1-N:1	C:1-N:2
Name	Vent1	Vent2
Security Set Nr	1:Security	1:Security
Humidity Set Nr	2:Humd Set 2	2:Humd Set 2
Pos. Diff for Alarm	0.0	0.0
Delay before Alarm	00:00:00	00:00:00
PBand on Max Position	0:No	0:No
Delta T on Wind Side	1:Yes	1:Yes
Screen Pos for security modif.	0	0
Nr Security Set On Screening	0:void	0:void
Nr Set Inf O/s T.	1:O/s T Set 1	1:O/s T Set 1
Nr Set Inf Rad	1:Rad Set 1	1:Rad Set 1
Nr Set Inf Rad Sum	0:void	0:void
Nr Set Inf Wind Speed	0:void	0:void
Min Vent Correc	1.5	1.5
Min Correc Prop.	10.0	10.0
Min Correc by Wind Speed Level	0.0	0.0
Wind Speed Level I. Min Correc	0.0	0.0
Pos switch Vent precision	10.0	10.0
Min Correc on low precision	0.0	0.0
Input Vent Pos nr2	0	0

Regulation PBand on Max position, the default calculation is set that the Pband set is for 100% opening, by setting this to 'Yes', the Pband set is for the max opening calculate.

Delta T on Wind Side, in case that you are not using the function 'T+/T-' (see General settings chapter), this permit to set the wind side as a delta of the lee side where the Lee side is a fixed temperature.

Correction Vents:

Min vent correction is the minimum calculation to move the outputs of the vents, (vents position between 0 and 10%) , if the vents is higher than 10% the min correction is recalculate with a maximum at the setting Min Correc prop set for 100%.

Vents configuration

	C:1-N:1	C:1-N:2
Name	Vent1	Vent2
LeeSide Angle Begin	0	180
LeeSide Angle End	180	0
Output Plus Name	Dept 1 Vent1++	Dept 1 Vent2++
Output Plus Number	1	3
Output Minus Name	Dept 1 Vent1--	DEpt 1 Vent2--
Output Minus Number	2	4
Vent Reg on Input position	0:No	0:No
Nr Input Vent position	0	0
Seconds Cde Adjust Vent Pos	1.1	1.1
Nr Input Humidity	1	1
Min MSec Cde Out	0	0
Seconds maintains Out at 0/100%	0	0
Event Name	PosVent 1 1	Pos Vent 1 2
Event Number	3	4
Nr compart of the screen	0	0
Nr screen in the compart	0	0
Nr Contact Stop Out On	0	0
Nr Contact Stop Out Off	0	0

Min MSec Cde Out: this is to use when the vents are on input position regulation, this permit to discard all small commands of the outputs relais with no effects,

Seconds maintains Out at 0% and 100%, is a special function that maintain the output ON, when 0% or 100% is calculate.

Event : Set here an event Name and number to affect the position of the vent

Nr Compart and (Nr Screen) : Set the compart and screen number that the Vent has to follow on for Security settings.

Nr Contact Stop Out On (Off) : Set here a contact number that the output open (Close) don't keep output relais ON till the contact is present.

Vents Security

In configuration page, select the security strategy needed to use depending on the season or the other desired reaction,

In Strategy page, select the positioning of the vents depending of outside climate conditions,

Set Name	1:Safety Set 1	Set Name	1:Safety Set 1	Set Name	1:Safety Set 1	Set Name	1:Safety Set 1
Rain: max Lee Position	15	W.S.Prop.Inf. Level Start	10	Frost: max Lee Position	0	Synchro at Rain	0:No
Rain: max Wind Position	6	W.S.Prop.Inf. Level Max	20	Frost: max Wind Position	0	Synchro at Windy	0:No
Rain: Activ Detection	1:Yes	W.S.Prop.Inf. Max Lee Pos	50	Frost: Temperature Activ Level	0.5	Synchro At Storm	0:No
Rain: Min.Time in State	00:02:00	W.S.Prop Inf. Max Wind Pos	40	Frost: Min.Time in State	00:15:00	Delay Before Rain	00:00:00
Rain Count Min in State	00:02:00	W.S.P.Inf. Minutes Calc Level	5			Delay Before Windy	00:00:00
Rain Remain Min in Rain	00:00:15	W.S.P. Inf. Min Time Remain In S	00:05:00			Delay Before Storm	00:00:00
Rain Wind I.Min Pos	3	Windy Max Lee Pos	30			Delay Before Frost	00:00:00
Rain Wind I.Max Pos	10	Windy Max Wind Pos	15				
Rain Lee Pos by Wind Inf	6	Windy WindSpeed Level	30				
Rain Wind Pos by Wind Inf	0	Windy Min Time In State	00:15:00				
		Storm: min Lee Position	0				
		Storm: Max Lee Position	6				
		Storm: max Wind Position	0				
		Storm: WindSpeed Activ State	60				
		Storm: Min.Time in State	00:20:00				

Rain

Once Rain detected, the vents go to (Rain: max Lee Position /max Wind Position). And remaining time in this position is kept after the rain detection disappears for the time set (Rain: Min Time in State).

In case that the “Rain status counting time” was less than (Rain Count Min in State), the remaining time become (Rain Remain Min in Rain).

Rain position can be influenced by Wind speed. Set a min and max wind speed that influence the Rain position, and set the rain position in maximum of influence.

Wind Speed

For wind speed influence on vents can be done in 3 levels : W.S.Prop. Inf.: Wind speed Proportional influence, Windy, Storm.

With (W.S.Prop. Inf.), you can set a wind speed levels and fix a maximum position for the vent when wind speed reach the max influence set. Wind speed can be average on a number of minutes calculating the influencing level.

With Windy, you can set a wind speed level to activate a status that the vents don't open more a certain level

With Storm, you need to secure your vent by closing the windy side, and declare a min and a max opening on the lee side.

Frost

Frost protection is in general used to keep the vents closed when outside temperature is near freezing temperature and creating an ice cover over the vents.

NB: other options are possible that permit to wait for a delay before reacting on each security event. And also to synchronize the vents once the security status is ON.

Synchro Vents

The synchronization is to be set when there is no potmeter giving the vents position. If the vents calculation are between 0 and 49%, the synchronization force the vents to 0% for the time closing, and if the vents calculation are between 50% and 100%, the synchronization force the vent to go to 100% for the opening time.

The 'Synchro' cyclic is to use especially in Humidity regulation, where it is possible to synchronization each set interval and when the vents are less than a Max percentage.

NB: the 'synchro' function is attached to the 'Security' function, so if the vent is not connect to a security settings, the synchro is not

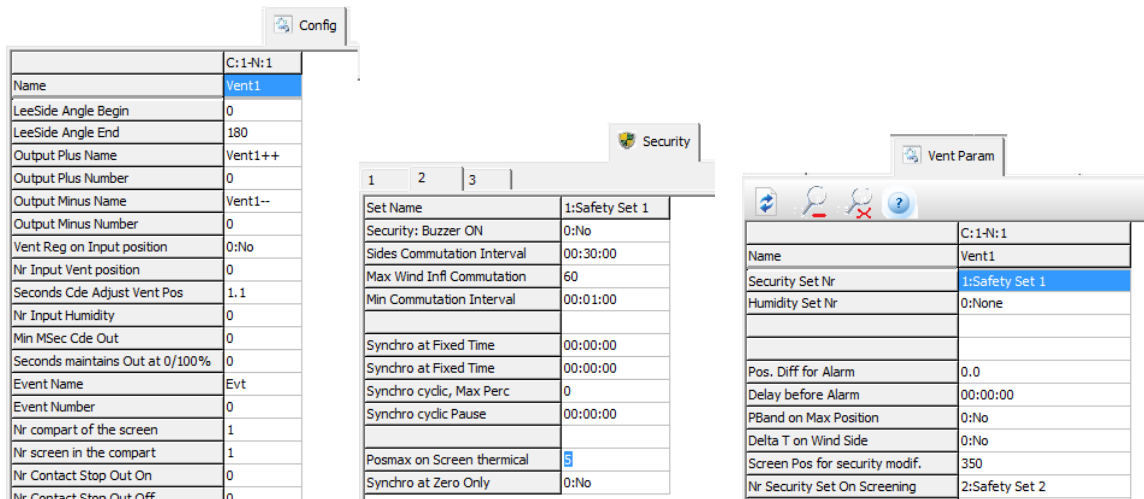
Set Name	1:Security
Security: Buzzer ON	0:No
Sides Commutation Interval	00:30:00
Max Wind Infr Commutation	20
Min Commutation Interval	00:05:00
Synchro at Fixed Time	00:07:00
Synchro at Fixed Time	18:00:00
Synchro cyclic, Max Perc	0
Synchro cyclic Pause	00:00:00
Posmax on Screen thermal	0
Synchro at Zero Only	0:No

Commutation side

side commutation interval : On the security page, enter the periodicity of recalculation of the Vent side positioning,

for example, a value of 00:30:00, mean that each 30 minutes with no Wind speed, the Vents position is recalculate, now depending of the wind speed till 40Km/h, the time is decreasing till 5minutes as in the example below

Link Screen to Vent function



The image shows three screenshots of the software interface:

- Config:** A table with columns for parameter names and values. The 'Name' field is set to 'Vent1'.
- Security:** A table with columns for security settings. The 'Set Name' is '1:Safety Set 1'. The 'Sides Commutation Interval' is '00:30:00'. The 'Max Wind Infr Commutation' is '60'. The 'Min Commutation Interval' is '00:01:00'. The 'Synchro at Fixed Time' is '00:00:00'. The 'Synchro cyclic, Max Perc' is '0'. The 'Synchro cyclic Pause' is '00:00:00'. The 'Posmax on Screen thermal' is '5'. The 'Synchro at Zero Only' is '0:No'.
- Vent Param:** A table with columns for vent parameters. The 'Name' is 'Vent1'. The 'Security Set Nr' is '1:Safety Set 1'. The 'Humidity Set Nr' is '0:None'. The 'Pos. Diff for Alarm' is '0.0'. The 'Delay before Alarm' is '00:00:00'. The 'PBand on Max Position' is '0:No'. The 'Delta T on Wind Side' is '0:No'. The 'Screen Pos for security modif.' is '350'. The 'Nr Security Set On Screening' is '2:Safety Set 2'.

In menu Config, each vent can be link to the screen where it is hanging under.

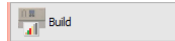
In menu Security, when the screen is unfold on thermal (energy) settings, a posmax can be applied to the vent.

In menu Vent parameters, the security strategy can be changed when the screen position is over a set level. So safety condition of the vents can be set differently when screen is unfold.

Installing vents function procedure

To add vents to a compartment you should proceed as followings :

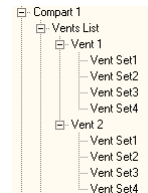
Select the Build button from the main left menu :



You need to add the vent function(Vent List), than the number of vents in the compartment (Vent x), than the number of set for each vents (Vent Setx)

Attention, you cannot mix in one compartment a different number of Set for each vent

The (vent set) is a set and not a period. Each vent need 2 set in each period, one when he is on leeside and one when he is on windside.



So on the example before, vent 1 and 2 has 2 periods, (Day and night).

Than vent1 and vent2 need to be configure :

To proceed, you have to go first to Vents function from the main left menu,

Choose (Admin Cfg) and activate the page (Set param),

In the page (Set param), you need to put a name for each Set and select one set for Leeside and one for Windside. See example below :

	C:1-N:1-S1	C:1-N:1-S2	C:1-N:1-S3	C:1-N:1-S4	C:1-N:2-S1	C:1-N:2-S2	C:1-N:2-S3	C:1-N:2-S4
Set Name	Day	Day	Night	Night	Day	Day	Night	Night
Vent Side	Lee	Wind	Lee	Wind	Lee	Wind	Lee	Wind

Then you go to the page (Config), and configure the outputs of the vent 1 and 2

Output Plus Name	Afd1 Raam1++	Afd1 Raam2++
Output Plus Number	1	3
Output Minus Name	Afd1 Raam1--	Afd1 Raam2--
Output Minus Number	2	4

And the Leeside angle of each vent :

LeeSide Angle Begin	35	235
LeeSide Angle End	235	35

LeeSide Angle Begin/ End : For each vents, the function need as configuration data, the position of the vents regarding the measure coming from the wind vane,

Like the example below, when the wind vane indicate a value between 35° and 235°, the specified vent is considered on Lee side and respectively in other value of the wind vane the vents is considered in Wind side,

Then you go to page (Settings), and select the button (PID Vent)

On the PID Menu, you have to enter the input temperature control for each vent and opening/closing time in milliseconds. See example below

Settings	Compartment 1	Compartment 1	Compartment 1	Compartment 1	Compartment 1	Compartment 1	Compartment 1	Compartment 1
Equip Name	Vent 1	Vent 1	Vent 1	Vent 1	Vent 2	Vent 2	Vent 2	Vent 2
Set Name	Day	Day	Night	Night	Day	Day	Night	Night
Overall Open Time	332000.0	332000.0	332000.0	332000.0	332000.0	332000.0	332000.0	332000.0
Overall Close Time	338000.0	338000.0	338000.0	338000.0	338000.0	338000.0	338000.0	338000.0
No Input	8	8	8	8	8	8	8	8

Then you go to page (Security), page (3), and create or verify that at least you have one set of security, and fill in the inputs number of the weather station connected to the system

1	2	3
Set Nr	1	
Set Name	Safety Set 1	
Security: Output Name	Vent Safety	
Security: Activ Output Nr	0	
Nr Input Rain Detection	56	
Nr Input WindSpeed	50	
Nr Input O/s Temperature	41	
Nr Input Wind Direction	42	

Then go to page (Vent param) and check that the security set is selected:

	C:1-N:1	C:1-N:2
Name	Vent 1	Vent 2
Security Set Nr	1:Safety Set 1	1:Safety Set 1

Here, the main function of the vent is programmed. See user settings in other paragraphs.

Humidity regulation

Humidity influence on Vents

Min MSec Cde Out: this is to use when the vents are on input position regulation, this permit to discard all small commands of the outputs relais with no effects,

Seconds maintains Out at 0% and 100%, is a special function that maintain the output ON, when 0% or 100% is calculate.

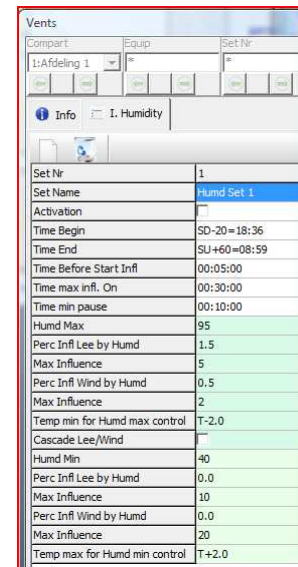
Regulation PBand on Max position, the default calculation is set that the Pband set is for 100% opening, by setting this to 'Yes', the Pband set is for the max opening calculate.

Delta T on Wind Side, in case that you are not using the function 'T+/T-' (see General settings chapter), this permit to set the wind side as a delta of the lee side where the Lee side is a fixed temperature.

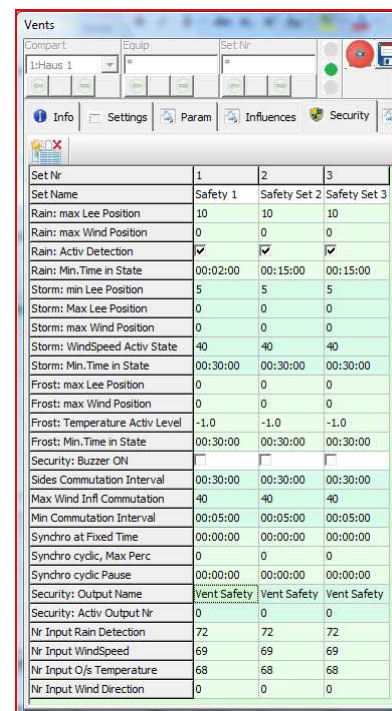
Synchro Vents

The synchronization is to be set when there is no potmeter giving the vents position. If the vents calculation are between 0 and 49%, the synchronization force the vents to 0% for the time closing, and if the vents calculation are between 50% and 100%, the synchronization force the vent to go to 100% for the opening time.

The synchro cyclic is to use specially in Humidity regulation, where it is possible to synchronization each set interval and when the vents is less than a Max percentage.



Set Nr	1
Set Name	Humd Set 1
Activation	
Time Begin	SD-20=18:36
Time End	SU+60=08:59
Time Before Start Infr	00:05:00
Time max infr. On	00:30:00
Time min pause	00:10:00
Humd Max	95
Perc Infr Lee by Humd	1.5
Max Influence	5
Perc Infr Wind by Humd	0.5
Max Influence	2
Temp min for Humd max control	T-2.0
Cascade Lee/Wind	
Humd Min	40
Perc Infr Lee by Humd	0.0
Max Influence	10
Perc Infr Wind by Humd	0.0
Max Influence	20
Temp max for Humd min control	T+2.0



Set Nr	1	2	3
Set Name	Safety 1	Safety Set 2	Safety Set 3
Rain: max Lee Position	10	10	10
Rain: max Wind Position	0	0	0
Rain: Activ Detection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Rain: Min.Time in State	00:02:00	00:15:00	00:15:00
Storm: min Lee Position	5	5	5
Storm: Max Lee Position	0	0	0
Storm: max Wind Position	0	0	0
Storm: WindSpeed Activ State	40	40	40
Storm: Min.Time in State	00:30:00	00:30:00	00:30:00
Frost: max Lee Position	0	0	0
Frost: max Wind Position	0	0	0
Frost: Temperature Activ Level	-1.0	-1.0	-1.0
Frost: Min.Time in State	00:30:00	00:30:00	00:30:00
Security: Buzzer ON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sides Commutation Interval	00:30:00	00:30:00	00:30:00
Max Wind Infr Commutation	40	40	40
Min Commutation Interval	00:05:00	00:05:00	00:05:00
Synchro at Fixed Time	00:00:00	00:00:00	00:00:00
Synchro cyclic, Max Perc	0	0	0
Synchro cyclic Pause	00:00:00	00:00:00	00:00:00
Security: Output Name	Vent Safety	Vent Safety	Vent Safety
Security: Activ Output Nr	0	0	0
Nr Input Rain Detection	72	72	72
Nr Input WindSpeed	69	69	69
Nr Input O/S Temperature	68	68	68
Nr Input Wind Direction	0	0	0

Screens functions

Screens can be set in Time, Shading, Energy (Thermal).

	C:1-N:1
Name	Dept 1 Screen
Set in use	Dept 1 Screen
Time Set Begin	FT=10:00
Time Set End	FT=16:00
Operation mode	1:1:Time fct.
Status	Time:Switch On
Current phase Time	00:00:32
Calc Position	0.0
Meas Position	0.0
Output Staus	-
O/s Temp	0.0
Radiation	325.0
Temp meas.	27.6
Humd meas.	37.0
O/s T Sw ON	
O/s T Sw OFF	
Rad Sw ON	
Rad Sw OFF	
Use Time	Time:Switch On
Use Energy	-
Use Shading	Shading:Radiation level 1

Time of day screen settings

The time-of-day settings menu is shown here. The screen is spread to a set

distance for a period fixed by the start and end times

Internal Temperature and humidity influences can alter the spread of the screen, generally to create a gap in order to remove excess heat or humidity.

	C:1-N:1-S3
Set Name	Time
Activation	0:No
Time Begin Set	FT=10:00
Time End Set	FT=23:59
Distance Set	450

	C:1-N:1-S2
Set Name	Dept 1 Screen
Activation	1:Yes
Time Begin Set	SU+60=06:44
Time End Set	SD-60=21:20
Set Normal	
Level1 Rad Switch On	800.0
Level 1 Temp	28.0
Level 1 Humd	50.0
Distance Set 1	200
Set Max.	
Level2 Rad Switch On	1000.0
Level 2 Temp	29.0
Level 2 Humd	40.0
Distance Set 2	300
Switch Radiation Off	
Shad Rad Switch Off	200.0
Delta Temp	3.0
Delta Humd	10.0
Delay Shad Switch Off	00:10:00

Two levels of shading are available corresponding to two spread positions. (position 1 is normal shading position with a normal gap. Position 2 is maximum shading with a small gap or with no gap).

The conditions to go from position 0 to position 1 and 2 are (OR) on Radiation, temperature, humidity. The condition to go down from position 2 to 1 is (AND).

The condition to go down from position 1 to 0 is (AND). Radiation and temperature are in condition higher. Humidity is in condition lower.

To Switch Off by temperature and Humidity, the regulation take a delta (below on temperature, over in humidity)

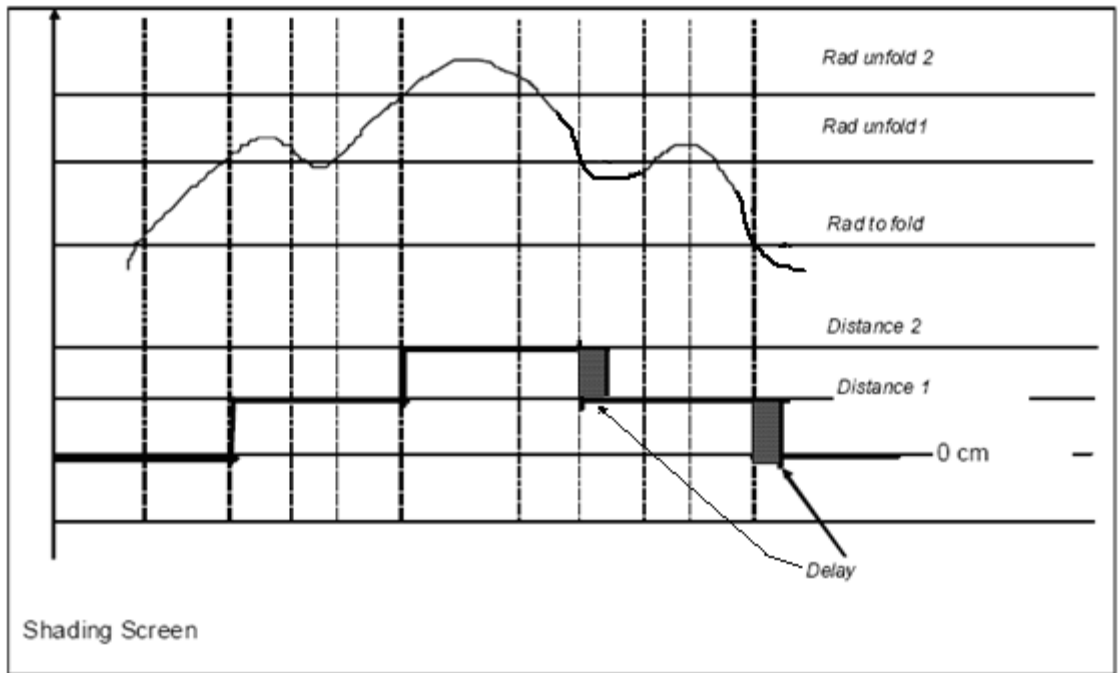
Internal Temperature and humidity influences can alter the spread of the screen, generally to create a gap in order to remove excess heat or humidity.

[Example on Shading and explanation :](#)

Here the shading is programed only on radiation :

	C:1-N:1-S2
Set Name	Dept 1 Screen
Activation	1:Yes
Time Begin Set	SU+60=06:45
Time End Set	SD-60=21:19
Set Normal	
Level1 Rad Switch On	400
Level 1 Temp	0.0
Level 1 Humd	0.0
Distance Set 1	200
Set Max.	
Level2 Rad Switch On	800
Level 2 Temp	0.0
Level 2 Humd	0.0
Distance Set 2	300
Switch Radiation Off	
Shad Rad Switch Off	200.0
Delta Temp	0.0
Delta Humd	0.0
Delay Shad Switch Off	00:05:00

See the figure below, to understand the set strategy.
 Note first that the delay is active to go from Set Max(1) to Set Normal(2).
 The settings temperature and humidity are on zero to disable their operating. Remember, It is possible to hide the lines for use only in Radiation mode.



Thermal Settings

By default, the thermal screen process is active during the overnight period and operates in response to external temperature and/or solar radiation conditions.

The screen can be programmed to spread in stages so as to avoid large changes in temperature.

The screen can be programmed for temperature protection.

As soon as the ambient threshold falls below a safety temperature the screen deploys until the internal temperature rises once more above the safety threshold.

C:1-N:1-S1	
Set Name	Energy
Activation	1:Yes
Time Begin Set	sd-60=18:25
Level O/s Temp Switch On	15.0
Level Rad Switch On	450.0
O/s T. fukd un r righ t	20.0
Condition Switch On	0:0/s Temp only
Time Start Step Switch Off	su=08:02
Level O/s Temp Switch Off	6.0
Level Rad Switch Off	150.0
Condition Switch Off	2:0/s T. Or Rad
Cond. Switch On DayTime	0:0/s Temp only
Activ. Step Switch On	0:No
Dist. Start Step Switch On	0
Interval Step Switch On	00:00:00
Step Dist. Switch On	0
Activ. Step Switch Off	1:Yes
Dist. End Step Switch Off	350
Interval Step Switch Off	00:05:00
First Step Dist.	10
Next Steps Dist.	20
Next Steps incr. percentage	30
Screen on T protection	0:No
T Start protection	0.0
T Stop protection	0.0

This menu is more technical in nature, and concerns the installation of the screen as well as the setting up of hybrid control strategies. All the settings in these menus is copied to the Energy/shading and time settings.

You need to program specially the input number of radiation and outside temperature concerning the Energy and shading sets.

	C:1-N:1-S1	C:1-N:1-S2	C:1-N:1-S3
Set Name	Energy	Shading	Time
Operating Mode	2:2:Thermal fct	3:3:Shading fct.	1:1:Time fct.
Activation	1:Yes	1:Yes	0:No
Time Begin Set	sd-60=18:25	SU+60=09:02	FT=10:00
Time End Set	su=08:02	SD-60=18:25	FT=23:59
Distance Set	450	450	450
Level O/s Temp Switch On	15.0	0.0	0.0
Level Rad Switch On	450.0	475.0	0.0
Condition Switch On	0:O/s Temp only	1:Rad only	0:O/s Temp only
Level O/s Temp Switch Off	6.0	0.0	0.0
Level Rad Switch Off	150.0	450.0	0.0
Condition Switch Off	2:O/s T. Or Rad	1:Rad only	0:O/s Temp only
Activ. Step Switch On	0:No	0:No	0:No
Dist. Start Step Switch On	0	0	0
Interval Step Switch On	00:00:00	00:00:00	00:00:00
Step Dist. Switch On	0	0	0
Activ. Step Switch Off	1:Yes	0:No	0:No
Time Start Step Switch Off	su=08:02	FT=00:00	FT=00:00
Dist. End Step Switch Off	350	0	0
Interval Step Switch Off	00:05:00	00:00:00	00:00:00
First Step Dist.	10	0	0
Next Steps Dist.	20	0	0
Next Steps incr. percentage	30	0	0
Amb Temp Switch On	0.0	5.0	5.0
Level 1 Rad Switch On	0.0	470.0	400.0
Distance Set 1	0	300	300
Level 2 Rad Switch On	0.0	650.0	600.0
Distance Set 2	0	450	380
Shad Rad Switch Off	0.0	300.0	200.0
Delay Shad Switch Off	00:00:00	00:20:00	00:10:00
Amb Temp Inf Dist	28.0	28.0	28.0
Amb Humd Inf Dist	95	95	95
Kp Amb Temp Inf Dist	2.0	2.0	2.0
Kp Amb Humd Inf Dist	2.0	2.0	2.0
Max Amb T/H Inf Dist	10	10	10
Nr Input O/s Temp	5	5	5
Nr Input Rad	8	8	8
Condition Switch On	0:O/s Temp only	0:O/s Temp only	0:O/s Temp only
O/s T. fold on night	20.0	25.0	25.0

Shading input temp and humidity

In Menu General, it is possible to program the followings:

Nr Input Rad	0
Nr Input Shading Temp	0
Nr Input Shading Humd	0

In case that the radiation, temperature and humidity used is the default ones of the compartment, keep this values on zero. To change to other inputs values, set here the input number related.

Internal Temperature and humidity influences can alter the spread of the screen, generally to create a gap in order to remove excess heat or humidity.

The influence has to be set for the colons related to time, shading, and energy function.

	C:1-N:1-S1	C:1-N:1-S2
Set Name	Energy Set	Shading Set
Amb Temp Inf Dist	28	24
Amb Humd Inf Dist	90	90
Kp Amb Temp Inf Dist	10	-200.0
Kp Amb Humd Inf Dist	10.0	0
Max Amb T/H Inf Dist	40	388
O/s T Activ Infl.Dist	0.0	0.0

A positive value on the Kp will create a reducing of the screen position to make a gap.

A negative value will have the effect to increase the screen position to unfold the screen. This can be used in case of protection of high temperature where screen can resolve this situation.

Outside Temperature active and inactive the influence function

Screen parameters

Here, the function influence on Heat related to energy function can be activated on Folding and on Unfolding of the energy screen

Delta O/s T., Tamb, activate that the settings on energy is a delta between O/s temperature and inside measurement, for switching ON function or switching OFF function

	Dept 1/Dept
Infl. Heat at Sw On	0:No
Infl. Heat at Sw Off	0:No
Delta O/s,Tamb at Sw On	0:No
Delta O/s,Tamb at Sw Off	0:No
Energy in Day Time	1:Yes
Delta O/s T SwON in DayTime	0.0
Delta Rad. SwON in DayTime	-30.0

‘Energy in Day Time’ permits to activate the energy function if there is not enough light or outside temperature is very low. So, the settings below have to be programmed with a delta from the set of Night time. (In ex. $O/s T < ((level SwOff) + (Delta))$)

Influence heating for spread/roll-up’ : this setting allows you to activate or deactivate the influence of the thermal screen process on the heating. Go to the settings for each heating system to program the number of degrees of influence.

‘Delta external Temperature/ambient Temperature for spread/roll-up’: this setting allows you to specify whether the setting for external temperature is entered as a delta (= difference) or a fixed threshold.

‘Thermal active daytime’: this setting allows you to activate the thermal screen process even during the daytime under extreme cold weather conditions when heating is insufficient.

Config Screen

Affect Status to an Event : This set the distance (internal measurement based on Time) to an Event

‘Aux Output’: this setting activates an output when the screen spread is greater than a programmed position.

‘Nr Contact Stop Out On’ : if the contact is ON, the output Switch ON will not be activate. Mean that screen is completely unfold

‘Nr Contact Stop Out Off’ : if the contact is OFF, the output Switch OFF will not be activate. Mean that screen is completely fold

‘P. Vent set ON Security’ function:

When the vent are higher position that the set value, the max screen unfolding is fixed on the value

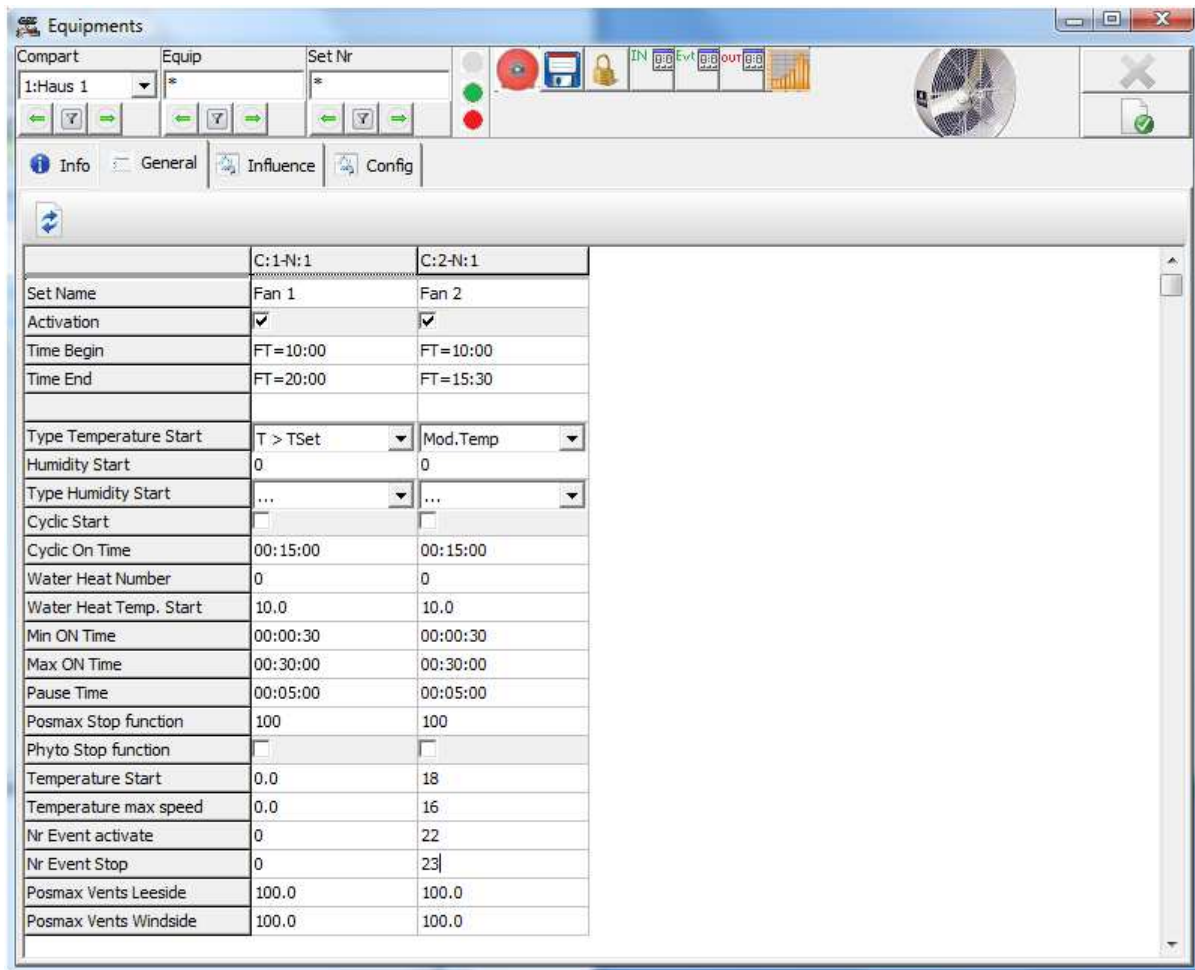
‘Security Max Distance’ A value of Zero on ‘P. Vent set ON Security’ settings disable the function

‘Num Event Set Secu’ set the event number and the value that over it the screens go to the max screen unfolding (Security Max distance). In example of rain detection stop screen function, connect the rain detection on an event, and set the event with pause and min time to prevent undesired oscillations.

If the screen position is lower than this value, no effect is made.

‘Nr Input Screen position’ : in case that a potentiometer is installed on the screen motor. Set here the input numbe. And set in ‘Error Meas ’ the precision of the input measurement.

	C:1-N:1
Screen Name	Dept 1 Screen
Output Name	Dept 1 Screen Close
Nr Output Switch ON	22
Output Name	Dept 1 Screen open
Nr Output Switch OFF	21
Screen Distance	400
Total Switching Time	00:00:30
Prog Event Name	Evt Scr0
Affect Status to ProgEvent	0
Aux Output Name	Scr Aux
Aux Output Number	0
Screen Pos Set ON Aux Output	0
Nr Contact Stop Out On	0
Nr Contact Stop Out Off	0
P.Vent set ON Security	0
Security Max Distance	0
Num Event Set Secu	21
Level Event Set Secu	50.0
Nr Input Screen Position	46
Error Meas. Screen Position	0.5



The fan has 2 way of regulation: ON/OFF or Modulate.

ON/OFF function :

in this function the fan can be controlled by :

- Temperature :
Measure compartment temperature (higher , lower) than set (Temperature Start),
Difference (Measure , Temperature calculate of the heating (Water Heat number)) (higher than Delta, lower than Delta, between (+/-) Delta) than set (Temperature Start=set as a delta)
- humidity :
Measure compartment humidity (higher , lower) than set (Humidity Start),
Difference (Measure , Humidity calculate) (higher than Delta, lower than Delta, between (+/-) Delta) than set (Humidity Start=set as a delta)
- cyclic : Cyclic On Time and Pause are to be set to run in this mode
- Water temperature :
Set temperature (Water Heat number) (higher) than the set (Water Heat Temp Start)

In case that the Vents of the compartment is open more than the max set by (Posmax stop function), the fan stop

In case that the Vents of the compartment is open more than the max set by (Posmax stop function), the fan stop

The max On time and pause time condition the switching of the function

Modulate function :

In this function, the fan can be controlled by Temperature, Humidity, Deficit, Event value (see config Nr event for regulation). For all this cases the modulation zone is given by the settings (Temperature start, temperature max speed).

In the example here, the type of start is humidity modulation,

The humidity zone is [80..95]%

So the fan is on minimum speed at 80% of humidity and 100% at 95% of humidity.

Type Temperature Start	Mod.Humd
Humidity Start	0
Type Humidity Start	...
Cyclic Start	0:No
Cyclic On Time	00:15:00
Water Heat Number	0
Water Heat Temp. Start	10.0
Min ON Time	00:00:30
Max ON Time	00:30:00
Pause Time	00:05:00
Posmax Stop function	100
Phyto Stop function	0:No
Temperature Start	80
Temperature max speed	95
Nr Event activate	0
Nr Event Stop	0

In case that the chosen modulation s on an event value, the (Temp start)is the begin of the modulation zone and (temperature max speed) is the maximum speed of the zone.

Fan Start can be conditioned by an events (Nr Event Activate) (need level higher than 50) and stopped by an event (Nr Event Stop) (need level higher than 50)

In case that the Vents of the compartment is open more than the max set by (Posmax stop function), the fan stop

Security ON In Type	0:Inputs >	1:Inputs <	2:Events >
Security ON In Number	23	10	12
Security Level	20	2	50

Security On Type (0 :Inputs Higher, 1 :Inputs Lower, 2:Events Higher, 3:Events Lower)

Security On In Number : inputs or events number

When the value of the In Number is higher or lower than (Security) , the Fan go on security and go to the max speed.

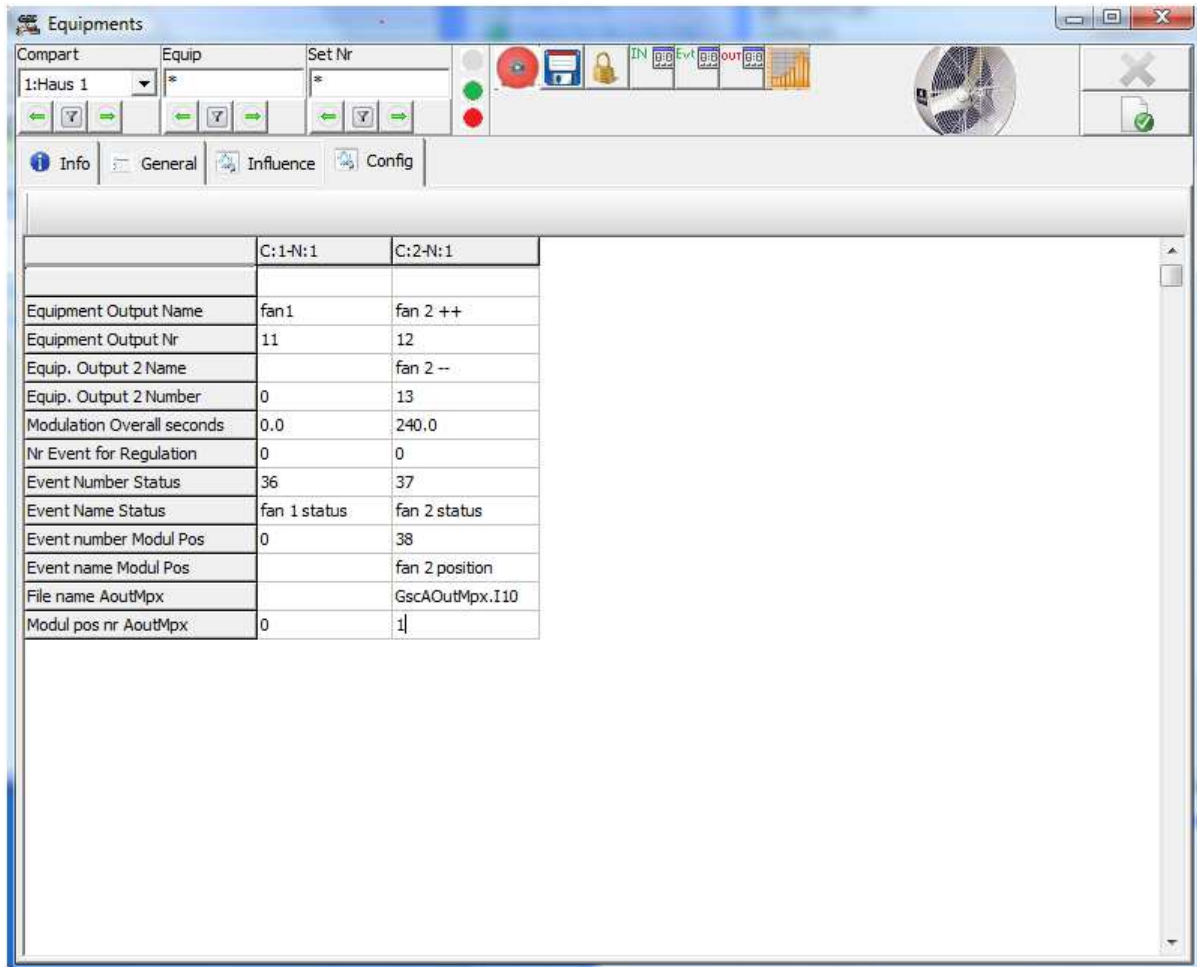
Note that (Condition Nr Event active, Condition Nr Event Stop) are not used in security mode

Min position : 0 .. Max

Max position : Min .. Max

When the Fan condition is OK, the fan will go to the min speed, and never go more than the maximum speed set.

Config :



File name AoutMpx : give here the name of the file of the box AnalogueOutput Multiplexer. The default name should be 'GscAOutMpx.I10'.

Modul pos nr AoutMpx : set the number of the output on the Analog box.

Main Settings

Activation, Date Begin/End, Time Begin/End :The function start if this conditions are enabled. A value of zero in the date disables the checking of a valid date.

O/s Temperature Start/Stop : if outside temperature is lower than Start level, this enable the function, and if the outside temperature is higher that the stop level, the function is disabled.

Rad. Start/Stop : if Radiation is higher than the level, the function is enabled, and if the radiation is lower than the set, the function is disabled.

Radiation Sum: if the radiation sum is higher than the function is enabled.

Input Start/Stop : if the level is higher ,the function is enabled, and if the level is lower the function is disabled.

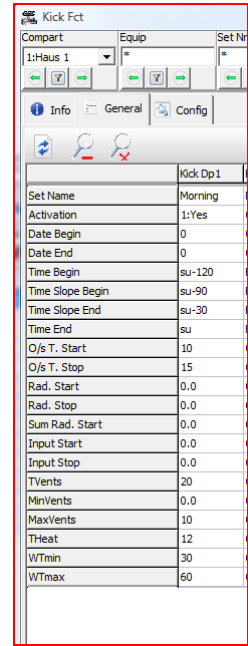
When the function starts, the slope time begin. It is always equal to the time duration between start and end slope begin,

Example : if the function start on outside temperature condition at ‘Sun Up -100’, the ‘slope begin’ end at ‘Sun Up -70’, that’s meaning 30 minutes later. The same situation is for the ‘slope end’.

The slope give a percentage that the settings go from the actual values to the Kick values and go back.

TVents, MinVents, MaxVents is respectively temperature, minimum position and maximum position of the vents

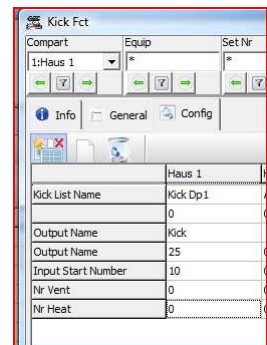
THeat, WTmin, WTmax : is respectively temperature, min water and max water temperature.



Config Settings

It is possible to switch On an output when the kick function is ON.

Nr Vent, Nr Heat is respectively the vent side (1= Lee, 2= Wind) or the water heating that the Kick has to operate the function. A value of zero mean that the influence is on all vents (Lee/Wind side) or heating. A value out of the vents or heating number disable the function on the vents or heating equipment.



Weather Station Nr	1
Compart	Meteo
Input Temperature	5
Input Humidity	6
Input Radiation	8
Input Wind Speed	11
Input Wind Direction	7
Input Rain Detection	15
Input CO2	0
Degrees Indicate North	0.0
Degrees Indicate Est	90.0
Factor Rad Sum	1.0000
Time Reset Rad Sum	FT=00:00
Event Name Rad Sum	Rad Sum
Event Number Rad Sum	10
Input Rain Counter	0
Event Name RainCount	
Event Num RainCount	0
Nb Minutes Average Wind Speed	2
Factor calc Wind direction	2
Nb Minutes Average W.direction	1
Event Name Wind inst.	
Event Number Wind inst.	0
Weather File name	GscWSC11.I10
Use Inst. Wind Speed	0:No
Nb sec Average Inst W.S.	0

Factor value: 0

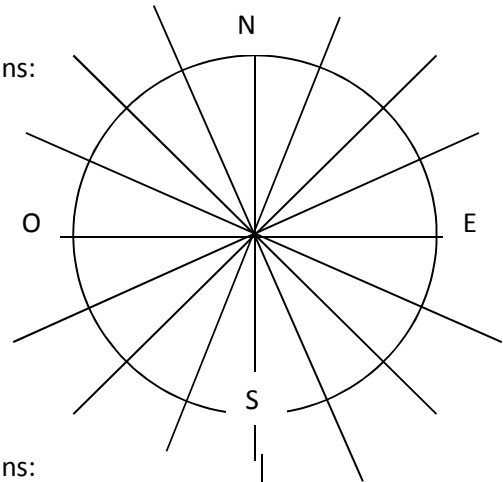
The measured value is taken each minute. The value read is put in the table of 16 sectors. The program gives a value of the middle of the concerned sector. The North has to be mechanically set that the north give angle 0.

Factor value: 1

Same as 0 but The North can be set by software with a delta (see set Degrees Indicate North: [-180,180]).

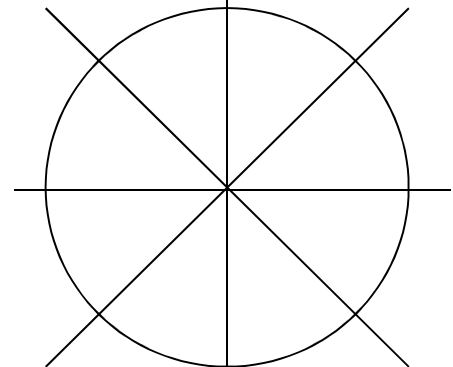
Factor value: 2

The calculated value of the wind direction is indications:
 0, 22.5, 45, 67.5, 90, 112.5, 135, 157.5,
 180, 202.5, 225, 247.5, 270, 292.5, 315, 337.5



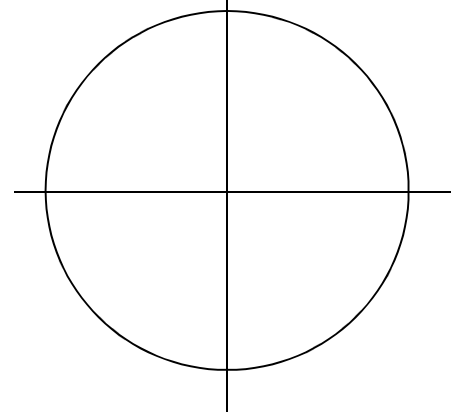
Factor value: 3

The calculated value of the wind direction is indications:
 0, 45, 90, 135, 180, 225, 270, 315



Factor value: 4

The calculated value of the wind direction is indications:
 0, 90, 180, 270



Special features WSC11

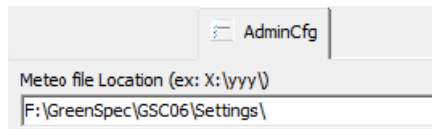
(since V 0.6.7.328)

It is possible to Affect the inputs of the meteo Station WSC11 to an input. You need to go to the menu AFP Config, page inputs, and set for an program input a Hard Type to EXT, and a usage type as MeteoFile. The Measure Period is necessary to limit access to the read/write file.

Nr Prog Input	22
AFP	7:AFL478:
Hard Type	3:Ext
Nr In Hard	2
Usage Type	6:MeteoFile
Usage parameter	0:Default
Name	Rad
Min	-325.0
Max	2112.5
CODAGE	4095
In Calib	0.0000
Calc. Shift	0.0000
Meas. Method	0:Direct
Meas. Period	00:01:00
Reading Freq.	10
NrEvent Min	0
NrEvent Max	0

On a network of GSC, it is possible to read the meteo file of the WSC11 station installed on another GSC on the net by setting the Location of the directory where the file

Example :



AdminCfg

Meteo file Location (ex: X:\yyy\)

F:\GreenSpec\GSC06\Settings\

Where F is s network disk



Boiler Room

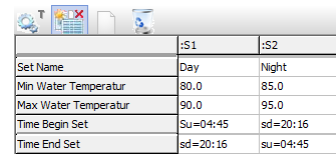
Info

This information's is a resume of the boiler actual situation,

Boiler Name	Boiler 1
Set in Use	1:Day
Water Demand	
Calc Min Temp	80.0
Calc Max Temp	90.0
Temp Set	80.0
Temp Meas	
Status	OFF
Time On	00:13:42
3WV Temp Set	
3WV Temp Meas	
3WV Pos	
3WV Pos	
Cde	
Pump	OFF
Alarm Status	
Step 2 Count	00:00:00
Valve Info	Not Actif
Valve	0:Close
Burner	
Nbre of CO2 Free	
Nbre of CO2 Forced	
CO2 Fan	
S.3WV perc	
% Buffer / % 3WVs Compart	
Buffer Set	
Buffer State	
Sum Working Day	00:00:00
Sum Working Week	0,00:00:00
Sum Working Year	0,00:00:00

Each boiler can have different Set period. See Buttons Add/Delete colons to Add boilers period Sets.

In each Set, use can set Min, Max boiler temperature and the time period



	:S1	:S2
Set Name	Day	Night
Min Water Temperatur	80.0	85.0
Max Water Temperatur	90.0	95.0
Time Begin Set	Su=04:45	sd=20:16
Time End Set	sd=20:16	su=04:45

On Installation, the PID Calculation of the boiler water temperature has to be set. Specially the temperature input related to the regulation of each Set. See PID Menu

The boiler temperature depend on the connected Water heating and transport regulation. You need to check the menu Water Heat Net.

Note that to disable a boiler only in a Set, you can simply set the temperature min/max of the boiler to a lowest temperature.

Note that when you set a name to the Colon Set, it will be more easier to manage your settings.

Boiler 1	
Alarm on Min Temperature	55.0
Alarm on Max Temperature	99.0
Delay Before Alarm	00:05:00
Input Alarm	12
Output Alarm Name	Bell
Output Alarm	121
Temp. Close 3WV	58.0
Temp. Open 3WV	97.0
Alarm on Delta Min/Max	0:No

Min/Max boiler Alarm

is a security to bell the user when there is a dysfunction in the boiler. The alarm occur after the delay set. This alarm is handled by email, computer bell and Central Alarm Output of the program.

'Alarm on Min Temperature', 'Alarm on Max Temperature', 'Delay Before Alarm' : this permit to set a water temperature level for alarm on the boiler.

Input Alarm

It is possible to connect an alarm coming from an outside contact. When the alarm input is higher than 50% the alarm switch ON.

For example, enter the contact alarm summary input coming from the boiler , this will activate a special output 'Output Alarm' once the alarm is ON. This permit to centralize the alarm information via the GSC program.

Delta Alarm

It is possible to configure that the alarm level is a Delta less than the boiler min temperature or over the maximum temperature.

In the example:

delta is on Yes, and Alarm Min Temp = 5

when the boiler temperature is 5° less than the boiler min temp of the current Set, the min boiler temp alarm switch ON

delta is on Yes, and Alarm Max Temp = 7

when the boiler temperature is 7° higher than the boiler max temp of the current Set, the max boiler temp alarm switch ON

Output Alarm

If one of the alarm above switch ON, it is possible to Set an output Alarm to be used as an Alarm or other special function. The output is reversed: this mean that when there is no Alarm the output is ON and in case of Alarm the output is OFF.

Temp. Open/Close 3WV

'Temp. Close 3WV', 'Temp. Open 3WV' : when boiler is lower or higher than those temperature level , the action of closing compartments 3WV will proceed. In each 3WV configuration you have to program the boiler number to connect those levels to open/close.

This will not activate an alarm, but it prevent from the alarm situation.

Influences

Inf T.Calc Inf T.Min Inf T.Max Inf Max Burner	
Invloeden1, 1	
	1
I. Name	I. Nr 1
Activ	0:No
Time Begin Set	FT=00:00
Time Slope Begin	FT=00:00
Time End Set	FT=23:59
Infl.Min	0.0
Infl.Max	1000.0
Infl.Value	0.0
Input Number	16:Temp, Paneel 2: 3
Input Type	0:Inputs
Influence Period	00:01:00

The standard influence function can be set to adjust :

- the Calculated boiler temperature
- the calculated boiler min temperature
- the calculated boiler max temperature
- the calculated max burner position.

For example CO2 or buffer status can influence the max burner position

to know more about the influence function see related paragraph.

Configuration

B:1	
Boiler Name	Boiler 1
Activation	0:No
Diff Temp to Start	0.0
Delay Before Start	00:00:00
Diff Temp to Stop	0.0
Boiler Type	On/OFF
Output Name	
Output ON/OFF	
Reverse Out ON	0:No
Min On Time	00:00:00
Max On Time	00:00:00
Min Pause Time	00:00:00
Burner Output Plus Name	
Burner Output Plus	
Burner Output Minus Name	
Burner Output Minus	
Delay before Regulation	00:00:00
Input Regul enabled	
Affect To Event Name	
Burner Pos. Affect to Nr Event	
Set T Boil.on T3WV	0:No
Set T3WV is Delta on Tboiler	0:No
Close 3WV on Boiler OFF	0:No
Recycling periode	00:00:00
Time ON in Recycling	00:00:00
TCalc Event Name	
Tcalc Event Number	

Use Button Add/Delete colons to manage the number of boilers to control.

On Installation, Use the menu PID Calculation of the burner position to set the regulation of modulating boiler. Specially the temperature input related to the regulation of each Set. See PID Menu

Use Water Heat Net to configure the net connexion of the boiler to transport to heating tubes of the compartments.

Boiler Name

Note that when you set a name to the Colon Set, it will be more easier to manage your settings.

Activation

This will activate all boiler regulations, Alarms, temperature regulation, outputs control.

Before set the boiler Activation on No, take care to resolve boiler alarms and output status.

Note that when the boiler is in alarm, set the activation on No, will not resolve the alarm situation.

'Diff Temp to Start'

When the temperature of the boiler is below (Calculated Temperature – Diff Temp to Start), the boiler go in the status Waiting before Start. (Status=1)

'Delay before Start'

When the condition above is stay true, and the delay is passed, the boiler switch ON. (Status=2)

'Diff Temp to Stop'

When boiler temperature is higher than (Calculated Temperature + Diff Temp to Stop), the boiler go to Stop, passing by a Min Pause Phase (Min Pause Time) than to Stop phase. (Status=0);

'Boiler Type'

Enter the boiler type as 'On/OFF', 'Flame Low/High', 'Modulate burner', etc.

Output ON/OFF

'Reverse Out ON'

set the boiler output reversed, output OFF mean boiler ON, and output ON mean boiler OFF.

'Min On Time', 'Max On Time'

This min on time is actif only in starting phase(Status=2). It maintain the output boiler ON for a minimum time before manipulating the burner position (Useful in special cases of boilers ON/OFF with no burner regulation)

Min Pause Time

Set the minimum time that the boiler has to stay OFF (Status 50) with no look to the boiler temperature starting conditions.

Burner Output Plus/Minus

Delay before regulation

After that the boiler has switch ON (Status=2), a delay is respect before operating the burner Plus Minus regulation to prevent the automatic (Standalone) ventilation phase of the burner.

'Input Regul enabled'

this input permit that the boiler don't have to wait for a set time before starting the regulation of the burner, it just wait that this contact is ON (>50), than the burner go to modulate.

In case that the contact is down (<50), the boiler go to stop on Min pause than complete OFF.

Burner Pos Affect to Event

Set the Burner position calculate of the boiler in an Event. This can be useful in many special applications.

'Set T Boil.on T3WV ', 'Set T3WV is Delta on Tboiler' :

the setting of the boiler is copied for the 3WV regulation affected to the boiler, also it can be a that the set entered for the 3WV is a delta with the boiler calc setting (Both Set here on Yes).

'Close 3WV on Boiler OFF'

this permit to close the 3WV when the boiler is OFF, useful when the boiler function is used for an exchanger.

'Recycling Period', 'Time ON in recycling'

if the recycling period time is set, this activate an high priority function where the boiler go ON for the 'Time ON in recycling', than switch to the default mode (OFF, previous set) from the rest of the Recycling period.

TCalc Event

Set the temperature calculate of the boiler in an Event. This can be useful in many special applications.

Water Boiler with 3 way valve/ Modulating Pump

A 3 way valve or a modulating pump can be affect to the boiler regulation function. By default the used term is 3WV but it could be the same for modulating pump.

Attention that this menu is by Boiler. The current boiler to be set is specified on the above of the following menu

Boiler 1	
Boiler 1:S1	
3WV Water Temperatur	70
<input type="checkbox"/> W.H.T. Valve <input type="checkbox"/> Influence ... <input type="checkbox"/> Cfg.:(Valve,Pump)	
C:1-N:1-S1	
Set Name	Set1
Min. Valve position	0.0
Max. Valve position	100.0
Time Begin Set	FT=00:00
Time Slope Begin Set	FT=00:00
Time End Set	FT=23:59

3WV Water temperature

This is the reference settings for the 3WV. It can be :

- a fixed temperature,
- the boiler calculated temperature,
- a delta temperature (TBoiler - TSet) (see Boiler config menu),

Influence on 3WV ...	
<input type="checkbox"/> Infl. on W.T. <input type="checkbox"/> Infl. Min Valve Pos. <input type="checkbox"/> Infl. Max Valve Pos. <input type="checkbox"/> Infl. on PBand Valve	
Involeden 1, 1	
I. Name	I. Nr 1
Actv	0:No
Time Begin Set	FT=00:00
Time Slope Begin	FT=00:00
Time End Set	FT=23:59
Infl.Min	0.0
Infl.Max	1000.0
Infl.Value	0.0
Input Number	12:In12, Paneel 1:
Input Type	0:Inputs
Influence Period	00:00:01

The standard influence function can be set to adjust :

- the Calculated 3WV temperature
- the calculated min 3WV position
- the calculated max 3WV position
- the calculated PBand of the 3WV

useful in case of special condition of buffer usage with speed limitations.

	C:1-N:1
Water Heater Name	
Output Plus Name	
Output Plus Number	
Output Minus Name	
Output Minus Number	
Name Output Pump	
N° Output Pump	
Time Remain Pump ON	00:00:00
Reverse Pump Output	<input type="checkbox"/>
Input Stop Pump	
Event 3WV pos Name	
Event 3WV pos Number	
Event WTCalc Name	
Event WTCalc Num	
Default position on init	

Water Heat Name

Note that when you set a name to the Colon Set, it will be more easier to manage your settings.

Output Plus/Minus

Output Pump (ON/OFF)

Time Remain Pump ON

Delay before switching OFF the output when condition switch OFF is valid.

Reverse pump output

set the output reversed, output OFF mean pump ON, and output ON mean pump OFF.

Input stop pump

In case that the 3WV position is on zero, this input keep output ON when the status of this contact input is ON (> 50). Otherwise, it wait for the counter 'Time Remain pump ON' before stopping the pump. (All the time that this input is ON (contact > 50), the pump is ON.)

Event 3WV pos

Set the 3WV position in an Event. This can be useful in many special applications.

Event WTCalc

Set the Water Temperature Calculate of the 3WV in an Event. This can be useful in many special applications.

Default position on init

On program initialization, the calculated position of this valve can be set to this default value.

High Flame

	Boiler 1
Activate	0:No
O/s Temp. Enable	
Delay Before Start	00:00:00
Temp. Diff. Start	
Temp. Diff. Stop	
Min Working Time	00:00:00
Output Step 2 Name	
Output Step 2	
Reverse Out ON	0:No

The term High flame or second speed is used for the same function where a boiler has 2 level of power delivery.

Activate

This will activate boiler to go on High Flame, regarding certain conditions

O/s Temp enable

When Outside temperature measured is lower than this Set, the function is active. When measured temperature of the boiler is lower than (Calculated Boiler Temperature - 'Temp Diff Start'), the boiler go on (status=21) (Delay before second speed).

Delay before Start

After this delay that boiler temperature still lower than calculated – Diff Start, the boiler switch to High flame (Set output high flame ON)

Temp. Diff Start/Stop

Min Working Time

After this delay that boiler is on high flame, if the measure boiler temperature is higher than (Calculated Boiler Temperature + 'Temp Diff Stop'), the high flame output will switch OFF.

Output Step 2

Reverse Output ON

set the output reversed, output OFF mean High Flame ON, and output ON mean High Flame OFF.

Valve

	Boiler 1
Activate	0:No
Time Begin	FT=00:00
Time End	FT=00:00
O/s Temp Activate	
Condition Type	0:Inputs
Temp Set Open	
Temp Set Close	
Input Nr Temp Ref	
Incr. Boiler Temp	
Output Open Name	
Output Open Nr	
Output Close Name	
Output Close Nr	
Check 3WV before Close	0:No
Delay Time checking	00:00:00
Tmax security Open	
Security Diff Close	
Stop Boiler On Valve OFF	0:No
Delay Min On Time	00:00:00
Delay before ON	00:00:00
Test To Open	0:<
Test To Close	0:<
N Hours as Master	

Activate

This will activate the function to control a main boiler Valve, regarding certain conditions

O/s Temp enable

When Outside temperature measured is lower than this Set, the function is active..

Condition Type: specify the origin of the value to use for the following open/close test

- Input : Input Value
- Events : Event value
- Nr Boiler Temp : the set 'Input Nr Temp Ref' = boiler number. The value used is the boiler measured temperature
- Nr Boiler Delta T : the set 'Input Nr Temp Ref' = boiler number. The value used is a delta = (the boiler calculated temperature – the boiler measured temperature)

Temp Set Open/Close

'Input Nr Temp Ref'

Regarding the measure of temperature at sensor reference, the valve open and close on the set temperature.

If the Condition type request a boiler number and the value of the set is zero. This equal to consider the boiler as a master in a boilers cascade. (Master = Valve open)

'Incr. Boiler Temp'

The Boiler Calculate temperature is increase by this number of degrees Set. This increment is not acting if the boiler is in (status wait to close) or (status security).

Value can be positive or negative depend of the strategy used.

Output open/close

There is no regulation on the opening/closing. The status is only Open or Close. In case that there is only one output available to control the open/close, it is possible to program only one of the outputs.

'Check 3WV before Close', 'Delay Time checking'

to close the valve a control on the 3WV can be made to check that the 3WV is closed

'Tmax security Open', 'Security Diff Close' : when the valve is closed and boiler temperature is higher than the set temperature, the boiler valve open, the boiler measure must go a delta temperature from the max security set to close back.

Stop Boiler on Valve OFF

Delay Min On Time

Delay before ON

Test to Open/Close

N Hours as Master

Buffer

In this menu you can set the action to do depending of the buffer filling, and percentage of compartment demand (average of all 3WV position). So it's possible to increase or decrease the boiler temperature during this period, the period can also be active only with CO2 demand,

Example

	Einstellung Nr.	Einstellung Nr.	Einstellung Nr.	Einstellung Nr.
Set Name	Buff/Boiler 1	Buff/Boiler 1	Unbuff/Boiler 1	UnBuff/Boiler 1
Startzeit	SU+60=09:46	FT=12:00	SD-60=17:18	FT=00:00
Endzeit	FT=12:00	SD-120=16:18	FT=00:00	SU=08:46
Buffer Fill Percentage	50.0	100.0	20.0	20.0
Delta On Boiler	5.0	5.0	-20.0	-10.0
Boiler Number	1	2	1	2
CO2 Activ Set	0:No	0:No	0:No	0:No
Activ Unbuffering	0:No	0:No	1:Yes	1:Yes
% Cpt demand Activ	100.0	100.0	100.0	100.0
Nr Boiler CO2	1	1	1	1

In the example above between 09:46 and 12:00, the boiler 1 will check that 50% of the buffer is full. This by adding 5° on the boiler 1 till that the buffer is more than 50%. In the afternoon the percentage of the buffer filling is 100%.

Same for Unbuffering, it is possible to decrease the boiler temperature when the buffer is higher than a percentage, and in 2 periods regarding the example above.

Buffer Configuration

This menu offer you the possibility to enter min/max temperature value of each buffer layer, this information will deliver a percentage of buffer filling, or in other terms the capacity of hot water contain in the buffer.

Example of buffer with 9 sensors :

	Einstellung Nr.	Einstellung Nr.	Einstellung Nr.	Einstellung Nr.	Einstellung Nr.	Einstellung Nr.	Einstellung Nr.	Einstellung Nr.	Einstellung Nr.
Level Name	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9
Min Water Temp	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Max Water Temp	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Input Number	20	21	22	23	24	25	26	27	28

The minimum temperature is the lower temperature that the buffer can have as returned water from the greenhouse, and maximum temperature is the higher temperature that needed in the buffer on each layer.

In case that there is one layer, the buffer percentage equal 50% for a layer temperature of 60°C, regarding the values on the example above.

CO2

Delay before Start CO2 Fan : this delay keep the output boiler Fan switch off from boiler start time till this delay time. This prevent all toxic gases of boiler start phase to be inject in the greenhouse.

Max burner position: when the boiler is On and forced CO2 demand is valid for the boiler, this is maximum burner position.

note that this position is disabled if the boiler temperature is below the water demand temperature.

Degrees Increase boiler temperature: set here the number of degrees to increase the boiler temperature when the forced CO2 demand is valid.

CO2 Fan Output : set the name and Soft output name of the CO2 central fan.

Number minimum in CO2 forced: set here the number of compartment asking CO2 forced to valid the central forced CO2 to the boiler. This prevent that only one compartment is asking for CO2, from a couple of compartments.

Event Number of compartments in Forced CO2 : set here the name and number of event receiving the value sum of compartment asking for CO2 Forced.

Event boiler in CO2 forced: set here the name and number of event receiving the value the status of the boiler in CO2 forced.

Event switch On forced : set here the number of event that over “the value Event Switch ON”, the Forced CO2 status of the boiler is active.

Nr Boiler copy CO2 demand: this make a copy from the boiler number set to the boiler colon set of the number of compartment asking for CO2

	Boiler 1
Delay Before Start CO2 Fan	00:00:00
Max Burner Position	
Deg. Incr. Boiler Temp	
CO2 Fan Output Name	
CO2 Fan Output Number	
Nb. Min in CO2 Forced	
Name Event Nb cpt in Forced	
Number Event Nb cpt in Forced	
Name Event Boiler in CO2 Forced	
Number Event Boiler in CO2 Forced	
Num Event Sw On Forced	
Value Event Sw On Forced	
Nr Boiler copy CO2 demand	

Energy Consumption

Set the gaz input pulse counter and the type of sensor (analogue/counter), and the multiply factor (pulse weight). Then affect this to an event to make influence on different equipments.

Event Sum V3V %: set here the name and number of event receiving the value (Sum of all heating percentage 3WV / total number of 3WV)

Event T demand Cpt: set here the name and number of event receiving the value max value temperature demand from all heating and transport.

Nr Input Energy consum.	
Type input Energy consum.	
factor Energy consum.	0.0000
Nb Meas for Average	
Nr Event Energy Consum.	
Event Name Energy Consum.	
Nr Event Sum E.Consum.	
Event Name Sum E.Consum.	
Nr Event S.work Time	
Name Event S.work Time	
Nr Event Sum V3V %	
Name Event Sum V3V %	
Nr Event T demand cpt	
Name Event T demand cpt	
Time Begin Z1	00:00
Time Begin Z2	00:00

Light function

	C:1-N:1	C:1-N:2
Set Name	Netbelichting	WKK belichting
Activation	1:Yes	1:Yes
Time Begin	FT=10:00	FT=10:00
Time End	FT=20:00	FT=19:00
Temperature Start	0.0	0.0
Type Temperature Start
Radiation Start	190	250
Radiation Stop	200	500
Cyclic Start	0:No	0:No
Cyclic On Time	00:15:00	00:15:00
level Radiation Sum Requested	0	0
Lamp Power	10.0000	10.0000
Min ON Time	00:00:00	00:05:00
Max ON Time	00:00:20	23:59:59
Pause Time	00:00:11	00:30:00
Delay before Start	00:00:13	00:00:00
Delay Before Stop	00:00:10	00:00:00
Nr Event Start	0	0
Phyto Stop function	0:No	0:No
Cycl Out1	0:No	0:No
Cycl Out2	0:No	0:No
Cycl Out3	0:No	0:No
Cycl Out4	0:No	0:No

Info	
	C:1-N:1
Name	Set 1-1
Set in use	
Start Type	... (0)
Counter	00:00:00
TotalTime	00:00:00
Status	0: OFF
Total Rad Sum	0.0

	C:1-N:1	C:1-N:2
Set Name	Netbelichting	WKK belichting
Equipment Output Name	Licht 1	Licht 2
Equipment Output Nr	160	159
Equipment Output Name		Vrijgave WKK
Equipment Output Nr	0	151
Equipment Output Name		Licht onbekend
Equipment Output Nr	0	158
Equipment Output Name		
Equipment Output Nr	0	0
Event Name	Light1-1	Light1-2
Event Number	0	0
Nr Input Stop Light	0	0
Nr Event Stop Light	0	0

The lightning function can be start by :

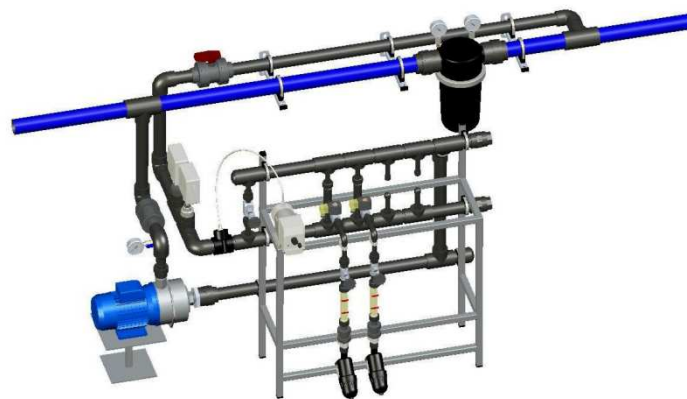
- Cyclic
Condition: Set start on yes, Time On lower than the cyclic time, not in min pause time.
- Radiation level
conditions : (Set Radiation start, Radiation stop) has to be over zero, level start lower than level stop, Radiation Meteo sensor lower than level Start
- Radiation sum level
conditions : Radiation sum must be lower than the set level
- Temperature,
condition: Temperature lower, higher, or in option delta (Tset Heating)
- Event
condition: event value higher than zero.

More details:

- Max On Time: respect a maximum running time by each output activation,
- Pause Time: respect a min switch Off time
- Min On Time: respect a minimum switching On Time
- Delay Before Start: the output will not be switch in before this delay,
- Delay before Stop: In this delay, the output is kept ON, The input/event to stop are not concerned by this delay to stop.
- Number Event to Start: Set here an event number to start the light when the event value is higher than 50%
- Phyto activation can stop the function,

- Lamp power : used to calculate the Total Radiation sum value add to the running time of the lamps

The Fertirrigation



Groups and Unit

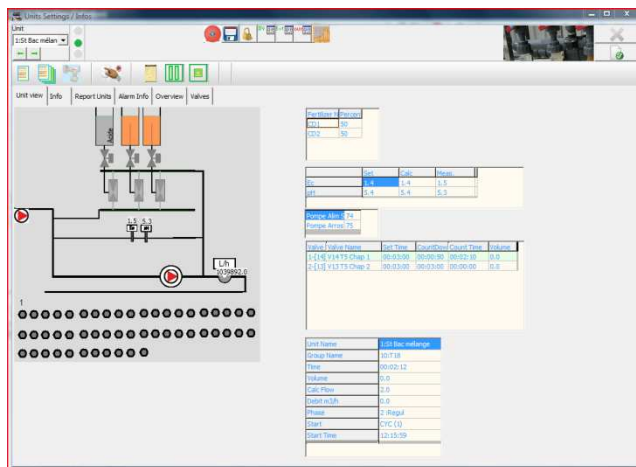
The notion of Unit is the ensemble of Valves, Venturis regulation, Motors valves regulation, Acide/Base regulation, Phases or strategy of working, alarms to

The group is an ensemble of settings where it feed the unit to start irrigation

- of a solution Ec/pH (where we add the PID regulation desired, the alarm strategy,...), and where settings can be by periods and influenced
- a list of valves declared in the specified unit, and where the user program time, volume, cc/gt, table, order in the irrigation list, and more different enhanced settings
- a list of outputs pumps to activate on the unit
- a list of starts strategy (fixed hour, manual, punctual, cyclic, radiation sum, cyclic N starts, contact, etc)
- a list of options to pause, stop, change pumps outputs depending on different inputs or time

Irrigation Unit Overview

Unit View



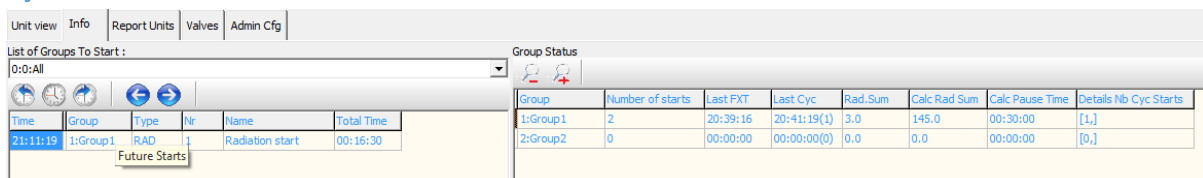
Unit view: the drawing of the unit can be animated with Inputs, Outputs and Events values. Also the table's position and values can be switch on/off depending of the client use.

Info, Reports Units, Alarm Info : different info to have all desired information on the unit and the groups

Overview : this page is special to draw different units and how to interact together

Valves : To see where each valves is programmed (with group)

Info



List of Group to start: Display the estimation time for a group to Start.

Group Status : Display information about the irrigation state of the group

Report Units

- Group Resume
- Group Details by Start
- Valve Report
- Unit Report
- Group Drain Report

Valve Report

Valve Report																			
13/05/2014		One Day		15/05/2014															
Valve number	Valve name	Set irrigation	Counted irrig	Set irrigation	Calc theo vol	Meas Irrigab	Meas Irrigab	Vol irr.	Vol Drain	Perc Drain	Tot irr.	Tot Drain	Tot Perc Dra			Ec Drain	pH Drain	H Substrate	
1	Kraan 1	00:00:00	00:00:00	0.0	0.0	0.0	0.0				0.0	0.0				0.0	0.0	0.0	
2	Kraan 2	00:00:00	04:38:55	0.0	0.0	47885.0	0.0	24020.0	0.0	0.0	47885.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	Kraan 3	00:00:00	00:00:00	0.0	0.0	0.0	0.0				0.0	0.0				0.0	0.0	0.0	
4	Kraan 4	00:02:00	00:00:48	0.0	0.0	133.4	0.0	66.7	0.0	0.0	133.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	Kraan 5	00:02:00	00:00:48	0.0	0.0	133.4	0.0	66.7	0.0	0.0	133.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6	Kraan 6	00:00:00	00:00:00	0.0	0.0	0.0	0.0				0.0	0.0				0.0	0.0	0.0	

In the example above we can read the sum of :

For a Valve number, Valve name,

Set irrigation time : each time that the group start, this value is incremented with the set time of the valve.

Counted irrigation time : this is the total time that the valve was ON.

Set irrigation volume : each time that the group start, this value is incremented with the set volume of the valve.

Calc theoretical volume

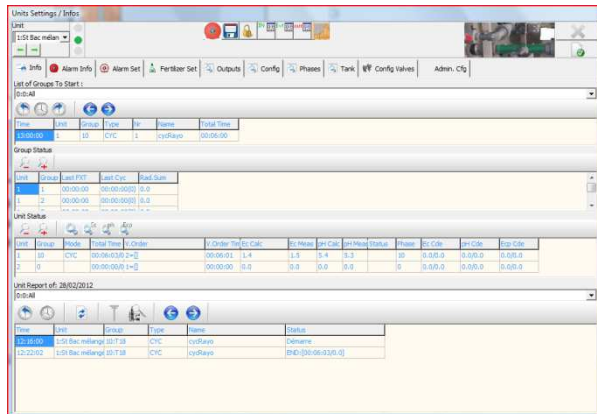
Measured irrigation volume

Measured Dripper volume (in case that the irrigation is on (liter by dripper)

Than by Valve in general (n case that the valve is programed in different groups)

1. The Actual Irrigation volume of the valve since the last irrigation start of the (Group contain this valve) (Reset at each Start of Group where the valve is present)
2. The Actual Drain volume of the valve since the last irrigation start of the Group (Reset at each Start of Group where the valve is present)
3. The Total Valve Volume Irrigation of the of the day (Reset on Midnight)
4. The Total Drain Volume of the day (Reset on Midnight)
5. The number of pulses of the day (Reset on Midnight)
6. The Drain Ec (affected to the valve)
7. The Drain pH (affected to the valve)
8. The Substrate Humidity (affected to the valve)

Unit



Info: different information's on the unit,

Alarm Info: Details on the alarm counter before alarms

Alarm Set: Here the alarm on the irrigation has to be set, different strategy (colons) can be programmed, than in each group you have to select witch strategy to use

Fertilizer Set: Here the mixing proportion and the output of fertilizer has to be set ON

Outputs: Some fixed outputs not attached to the groups

Config: Configuration of the Unit

Phases: here the course of the irrigation can be divided in phases, and different strategy of phases can be programmed

Tank : Fertilizer Tank, or Water storage Tank can be monitored with alarms control

Config Valves: here the valves of the units has to be programmed

Admin Cfg : Here some options to activate depending on the administration of the unit

Alarm Set

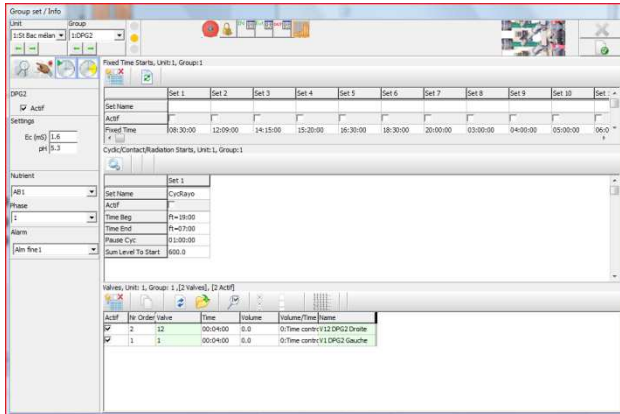
each colon is an alarm strategy. This strategy has to be affect by Group and by period of the group eventually.

	U:1-N:1
Alarm Set Name	Standaard Al
Activate Alarms	0:Nee
EC Alarm	1:Ja
Diff for Alarm Ec High	0.8
Diff for Alarm Ec Low	0.8
Delay Before Alarm EC	00:01:00
Continue Irrig. and Set No Regul	0:Nee
PH Alarm	0:Nee
Diff for Alarm pH High	0.8
Diff for Alarm pH Low	0.8
Delay Before Alarm PH	00:01:00
Continue Irrig. and Set No Regul	0:Nee
Debit Alarm	1:Ja
Percentage Min Flow	40.0
Percentage Max Flow	40.0
Delay Before Check Debit	00:00:30
Delay Before Debit Alarm	00:01:00
Nr Input for Alarm Pump	0
Nr Input for Alarm Contact	0
Nr Input Ec Monitor	2
Nr Input pH Monitor	0
Dif Alarm Ec monitor	1.0
Dif Alarm pH monitor	0.0
Delay Before Alarm Monitor	00:02:00
Unit Phase in Alarm	8
Nr Input Flu.	0
Delay before Check Flu.	00:00:00
Delay before Alarm Flu.	00:00:00
Activ Auto Restart	1:Ja
Delay before Restart	00:00:30
Max Number of Restart	2
Analogue Input Number	0
Analogue Level for alarm (>)	0.0

Percentage	Influences	Config
Unit: 1, Fertilizer Set: 1/6: Geen Mest A		
		U: 1-S: 1-F: 1
Fertilizer Name		Geen Mest A
Fertilizer Percentage		100
Fertilizer Output Name		1:Mest A+
Fertilizer Output		21
Fertilizer Output Name Valve--		1:Mest A-
Fertilizer Output Number Valve--		22
Event Name:Calc. Perc.		
Event Nr:Calc. Perc.		0

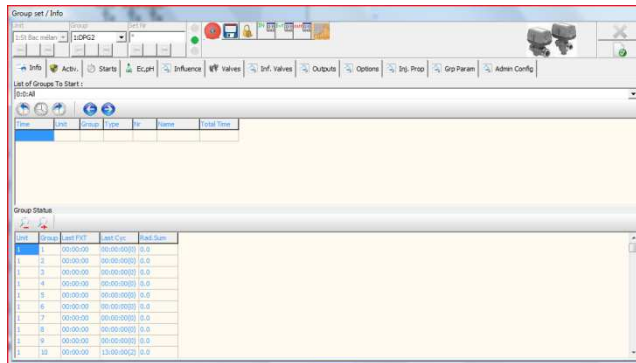
Percentage	Influences	Config
		U: 1-N: 1
Fertilizer Name		Geen Mest A
Close V+- in Regul OFF		0:No
Open V+- at Reg Start		0:No

Group 'Quick Programming'



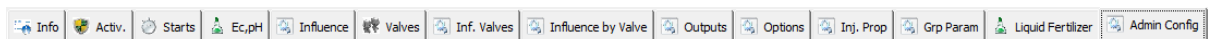
Here in this menu, it is possible to program (and activate/deactivate) quickly the hours to start, the periodicity of the cyclic start, valves (order, time, volume,...), Ec,pH, Alarm strategy, phase strategy, fertilizer strategy.

Group Menu



Here is a resume of the different pages of the Group menu:

- Info: different information's on the group
- Activ : Activate deactivate the group. Activation can be each n day, or a specified day of the week
- Starts: fixed hour, cyclic, Radiation, contact starts. Here you have a resume of the different starts, see advanced start setting to have more details
- Ec/pH: set the solution with the desired strategies
- Influence: Influence on Ec set, (example: Radiation influence on Ec of the group)
- Valves: set the valves to affect to the group
- Inf. Valves: Set here the influence on the time or volume of the programmed valves
- Outputs: set here the outputs to switch ON when the group starts (example: irrigation pump, fresh water pump, selection water silos, etc)
- Options: pause, stop, change pumps outputs depending on different inputs or time
- Inj. Prop: set here the proportional injection (example: phyto treatments with an outside venturi)
- Grp Param: set here the events to feed back the group time/volume irrigate
- Admin Config.: Here some options to activate depending on the administration of the group



Page Activ

Unit	1	1	1
Gruppe	1	2	3
Name	Gur 1	Gur 4	Boh 5B
Activ.	1:Yes	1:Yes	0:No
Days Interval	0	0	0
Monday	1:Yes	1:Yes	1:Yes
Tuesday	1:Yes	1:Yes	1:Yes
Wednesday	1:Yes	1:Yes	1:Yes
Thursday	1:Yes	1:Yes	1:Yes
Friday	1:Yes	1:Yes	1:Yes
Saturday	1:Yes	1:Yes	1:Yes
Sunday	1:Yes	1:Yes	1:Yes

To have the group able to run, the group must be activate.

The activation can be set in cyclic day:

ex: 3 , mean that the group will be active one day each 3 day.

The activation can be in a specific day of the week.

Page Start

Fixed Time Starts, Unit:1, Group:1				
	Set 1	Set 2	Set 3	Set 4
Set Name	FXT 1	FXT2	FXT3	FXT4
Actif	0:No	0:No	0:No	0:No
Fixed Time	18:00:00	00:00:00	00:00:00	00:00:00
Fixed Date				

Cyclic/Contact/Radiation Starts, Unit:1, Group:1		
	Set 1	Set 2
Set Name	Cyclic	Rad_Sum
Actif	1:Yes	1:Yes
Time Beg	FT=08:00	FT=08:00
Time End	FT=17:00	FT=18:00
Pause Cyc	00:30:00	00:05:00
Sum Level To Start	0.0	200.0
Input Level To Start	0.0	80.0
Min Level To Sum	0.0	50.0
Infl. On first Start	0.0	0.0
Infl On All Starts	0.0	0.0
Type Start	0:Cyclic Time	8:Radiation Su

The starts of the group is in 2 types: Fixed time start or Cyclic.

The Fixed time start include Manual start and punctual start

The Cyclic start include all start by contact, by radiation, by event, etc.

Page Ec/pH

	U:1-G:1-P1	U:1-G:1-P1	U:1-G:1-P2
Set Name	Set 1	Morning	Afternoon
Ec	2.5	2.5	2.8
pH	5.5	5.5	5.5
Post Ec	1.2	1.2	1.2
Alarm Set	1:AlmU1	1:AlmU1	1:AlmU1
Fertilizer Set	1:Set F	1:Set F	1:Set F
Phases Set	1:Phase Set 1	1:Phase Set 1	1:Phase Set 1
Outputs Set	0:Auto	0:Auto	0:Auto
Fix Ecp 3WV	0:No	0:No	0:No
Ecp 3WV Pos	0.0	0.0	0.0

In this Page, of the Menu Group, set :

- the solution Ec, pH, Post Ec need on the selected Time period. Post Ec is a connection to a post Unit water inlet regulation.
- the Alarm strategy, (see Menu Unit, page Alarm to configure the different strategies)
- the fertilizer strategy (see Menu Unit, page Fertilizer to configure the different strategies)
- the Phase Set (see Menu Unit, page Phase to configure the different strategies, and also the menu Group Page Outputs to configure the outputs numbers regarding the selected strategy)
- the Outputs Set (see the menu Group Page Outputs to configure the outputs numbers regarding the selected strategy)
- The Strategy of Fixed position of the post Ec regulation valve (Yes/No), and the position required in case of.

Page Influence on the Ec

Influence 1, 1	
I. Name	1. Rad on the Ec
Activ	1:Yes
Time Begin Set	su+120
Time Slope Begin	su+120
Time End Set	sd-180
Infl.Min	400
Infl.Max	800
Infl.Value	-0.5
Input Number	5:Strahlung, AFP 1: 4
Input Type	0:Inputs
Influence Period	00:05:00

This page is the set influence on the calculated Ec. The Set time period, and Level to start influence and Influence max has to be set depending the input type desired. Here in the example above the Radiation (W/m^2) start at $400 W/m^2$ and move a $0.5 Ec$ decrease in proportionally till $800 W/m^2$. Over the $800 W/m^2$ the influence will be kept on the maximum influence.

Options

Each colon corresponds to a strategy of the Period set for a Group of the Unit.

Ec Pre regulation:

‘Contact Empty tank’: when this contact input is lower than the ‘level Empty Tank’, the regulation go to set the regulation of the Ec to fresh water. Once the contact level is back to higher than the set, a pause time of ‘Time Activ F.W.’ is countdown

Event or Contact input Stop the group/Unit:

Depending on the Type of test selected ‘Niveau Contact Type Higher/Lower’, regarding the value of the level ‘Niveau Contact Stop the group’, the group will stop the unit.

Event or Contact input pause the group/Unit:

Depending on the Type of test selected ‘Niveau Contact Type Higher/Lower’, regarding the value of the level ‘Niveau Contact pause the group’, the group will pause the unit in state Phase 9.

	U:1-G:1-P1
Contact Empty Tank	0
Level Empty Tank	0.0
Level Empty Tank Type	0
Time Activ F.W.	00:00:00
Post Ec set Delta on Entry	0:No
Nr Event Stop Group	0
Contact Stop Group	7
Niveau Contact Stop Group	15.0
Niveau Contact Type (High/Low)	1:Level Lower
Numero Input Pause Group	0
Nr Event Pause Group	0
Level Pause Group	0.0
Niveau Contact Type (High/Low)	0:Level Higher
Min. Time Pause Group	00:00:00
Nbre of Seconds Outputs ON	0
Nbre of Tables Holding	0
Phase Wait Holding Tables	0
Nr Unit On Set Pause	0
Phase in Between Valves	6
Seconds waiting Between Valves	4
Nr Group follow on	0
Priority (0:Lowest)	0
Set PlusMinus valve on Start	0:No
Saved PlusMinus Reg Position	0.0

Example Pause Group :

When input 22 value is higher than 83%, the group go in pause

On the Phase 6 of Unit, the output status is set to keep on this status with output 1 ON.

Numero Input Pause Group	22
Nr Event Pause Group	0
Level Pause Group	83.0
Niveau Contact Type (High/Low)	0:Level Higher
Min. Time Pause Group	00:00:10
Pause Sw to Phase	9

Phase Nr	6
Phase Name	Special Pause
Phase Time	00:00:00
Phase Input Nr	0
Phase Event Nr	0
Phase Input Level	0.0
Next Level	6
Alarm Ctrl	0:No
Ec Ctrl	0:No
pH Ctrl	0:No
Post Ec Ctrl	0:No
Valve Ctrl	0:No
Output Nr 1	1:Yes
Output Nr 2	0:No

Nbre of Seconds Outputs ON:

A value set here give the minimum number of seconds that the command of the group outputs will be set ON.

A zero set here set the default number of seconds to 10 seconds.

Horticultural Tables:

‘Nbre of tables Holding’: Set here the maximum tables holding at the same time before switching to next table/Valve. This has to be used in horticultural tables irrigation

‘Phase Wait Holding Tables’: Set the phase number of the unit to be when tables are in Hold state.

'Nr Unit On Set Pause':

If the Unit Number set on this set is running (Phase of the unit between 1 and 8), the current group/Unit go on Pause.

Valves:

'Phase in Between valves': Set here the Phase number to set the unit status on the pause. Note that the 'phase time' (in Menu Unit Page Phase) should be bigger than the setting 'Seconds waiting between valves'.

'Seconds waiting between Valves': Set here the pause in seconds between 2 valves from different order number.

Follow:

When the set 'Numero Group Follow ON' is set to a group number of the unit, once the group of the unit stop, this set group will start as 'Follow' (a following group).

Priority:

When this value is higher than zero for a group who is going to start when a group with lower priority is running on the unit, the group (running with lower priority) will stop.

Ec regulation with Plus Minus Valve:

Start Ec Plus Minus regulation with a valve position equal the position of the latest irrigation of the group.

Unit Plus Minus Type set on 2. In case that 'set Plus Minus valve on Start' is on Yes, the unit will set this position on the starting of the group. (when Unit is on Phase 1).

The position of the valve is set to 'Saved Plus Minus Reg position'. This value can be set or adjust by the user. But the value is recalculating after each irrigation.

Note that in Menu Unit, Fertilizer Set, Config, set 'Open V+- at Reg Start' must be on Yes

Nb of Minutes/Liters Infl. on Time/Volume Valves Unit: 1 Group: 1	
I. Name	I.Valves
Activ	1:Yes
Time Begin Set	FT=00:00
Time Slope Begin	FT=00:00
Time End Set	FT=23:59
Infl.Min	300.0
Infl.Max	500.0
Infl.Value	10.0
Input Number	5:Radiation, AFP 1: 3
Input Type	0:Inputs
Influence Period	00:00:00

The influence is active on all valves.

In case that the irrigation type of the valve is time, the valve time will be increase by this influence (Inf. Valve)*(One Minute).

In case that the irrigation type of the valve is volume (or cc/gt or l/m²), the volume of the valve will be increased by the set value (Infl. Valve)

The influence can be activate on an input/Event/Output value.

Group Parameters

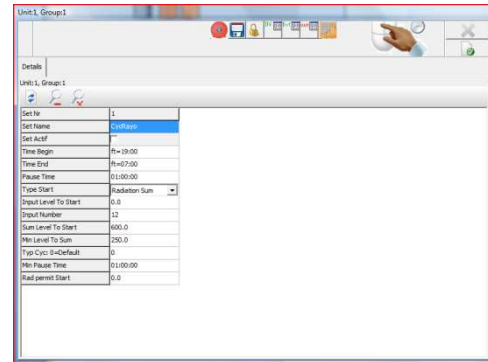
Unit	Unit 1
Group	Block 1
Sum Time Event Number	0
Sum Time Event Name	Sum Time
Sum Vol Event Number	0
Sum Vol Event Name	Sum Vol
Reset R. Sum on Fixed Time Start	1:Yes
Keep R. Sum of yesterday	0:No
Nb Sec maintain Ec inj on Start	0
Nb Sec maintain pH inj on Start	0
Delta Ec activ Ini Inj	0.0
Delta Ec Stop Ini Inj	0.0
Max Nbre of Ini Inj	0
Msec Cde Ec Ini Inj	0
Nr Valv for Drain counting	0
Perc Drain Event Number	0
Perc Drain Event Name	
Ec average Event Numb	0
Ec average Event Name	
pH average Event Numb	0
pH average Event Name	
Reg pH only(Ec in Zone)	1:Yes
Manual Reset Group Sum (Time/vol)	0:No
Set Last Fixed Time to Last Cyc Time	0:No

Manual Reset Group Sum (Time/Volume).

On the example above, the time (in minutes) and the volume of the group are stored in the event 49 and 50. Those events are set to zero by default on midnight. To keep this value running from one day to the next day, you need to set on yes the setting above.

To reset the counting time/volume, you need to do it manually by selection the button (Advanced) in the horizontal tool bar above.

Set Last Fixed Time to Cyclic Time : this function permit to set the last cyclic time to the last fixed time. For practical example: when a manual start is proceed, the cyclic pause is reset.



Start Type :

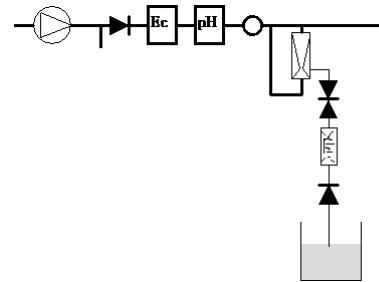
0. Cyclic Time: here from Time begin to Time End the group start than Pause for the set time in Pause
the first start is set on the 'Time Begin' and the following one are set in the interval time set by the 'Pause Time'. (note that if the last cyclic start time has been moved by busy unit, for example, the next start is kept at the default cyclic time start)
1. Radiation Sum: here the group respect the starts in cyclic but can also start once the radiation sum has been reach and reset the cyclic pause time. You have to respect that the Radiation 'sensor input Number', the 'Sum Level to Start', the 'min Radiation level to Sum' (under this level the sum is not cumulating), 'Min pause Time' (if the radiation sum is too low this prevent to start the group very quickly), 'Radiation permit start' (when radiation is under this level the start cannot occur),has to be programmed, ((in page options : the first cyclic start of the day can be select to proceed (y/N)))
2. Contact Detect: on contact detected the group start. 'Pause Time', Input level to Start', 'input Number' has to be programmed.
3. Contact Keep ON: here all the time that the contact is ON, the group maintain to run
4. Contact Low : When the contact is lower than the set level, the group start,
5. Frost Start: once detected the group start and stay ON till the user deactivate the start modes or the group.
6. Cyc N Starts: it is possible to set the start of the group with N1 starts of fresh water, N2 starts of fertilized water than N3 starts of fresh water.
7. Follow Group. The 2 groups has to be in the same unit. Once the reference group is on the start list, the follower group will come after.
8. Radiation Sum Only : no cyclic is set here, the start is only when the radiation sum set is reached.
9. On Event : the group start when the event value is higher than the level to start. The event number and level to start has to be set On.
10. Cyclic Shift : the next cyclic start is set on the time last start of the group increased by the pause cyclic time.

	Set 1
Set Name	Cyclic Shift Start
Actif	1:Yes
Time Beg	FT =08:35
Time End	FT =18:00
Pause Cyc	00:20:00
Type Start	10:Cyclic+Shift

11. BackWash : The start condition is on the setting (input level to start) you must set in (hour time sum) the value to start the backwash, once the backwash done, the running time to backwash of the unit is reset. This time can be seen in menu Unit overview, page Report unit

Injection proportional

Group set / Info							
Unit	Group		Set Nr				
1:Tische	1:Bianca						
Info	Activ.	Starts	Ec,pH	Valves	Outputs	Options	Inj. Prop.
Unit	Tische	Tische	Tische	Tische	Tische	Tische	Tische
Group	Bianca	Pericallis S2	Pericallis S3	Azaleen Treib	Horten.H11	frisch getopf	
Activ Inj Prop	0:No	0:No	0:No	0:No	0:No	0:No	0:No
Theo Venturi Flow F	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vol Inj Prop by mille	500.0	500.0	500.0	500.0	500.0	500.0	500.0
Min MSec Injection	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Inj Output Name	Inj Prop	Inj Prop	Inj Prop	Inj Prop	Inj Prop	Inj Prop	Inj Prop
Inj Output Number	0	0	0	0	0	0	0
Activ in FW only	0:No	0:No	0:No	0:No	0:No	0:No	0:No



- **Active Inj Prop (Yes /No)** Enter 'Yes' to enable the function.
- **Theoretical Venturi flow rate** Flow rate of the solution to be injected through the valve: the value entered depends on how the function is used.
- **Injection Volume per 1000 liters** Determines the dilution. The required pH figure is calculated as follows:

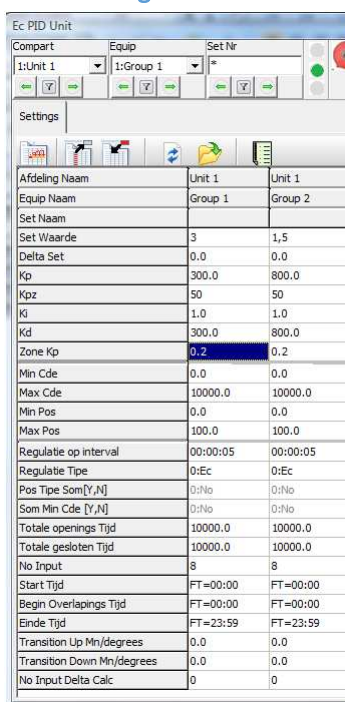
Example:
If the objective is to inject 1.5 liters of plant protection solution for every 1000 liters of irrigation water, the value of the setting is 1.5 litres.
- **Minimum MSec injection time** Minimum operating time for the injection valve, expressed in Milli seconds
- **Inj Output number** Number of the Venturi output used to control the injection

Information on Prop Injection:

Unit Name	1:Unit
Group Name	1:Wasser
Time	00:00:32
Volume	572.0
Calc Flow	2.0
Debit l/h	79.2
Phase	2 :Regul
Start	FXT
Start Time	20:27:34
I.P.:Irr Vol/Inj Vol	572.0/0.1
I.P.:Inj Time (MSec)	792

- **I.P. :Irr Vol/Inj Vol :** Injection proportional : Irrigation volume / injected Volume
- **I.P. : Inj Time (MSec)** Injection proportional : Injection Time in milliseconds

Menu PID Regulation



Settings	Unit 1	Unit 2
Afdeling Naam	Unit 1	Unit 1
Equip Naam	Group 1	Group 2
Set Naam		
Set Waarde	3	1,5
Delta Set	0.0	0.0
Kp	300.0	800.0
Kpz	50	50
Ki	1.0	1.0
Kd	300.0	800.0
Zone Kp	0.2	0.2
Min Cde	0.0	0.0
Max Cde	10000.0	10000.0
Min Pos	0.0	0.0
Max Pos	100.0	100.0
Regulatie op interval	00:00:05	00:00:05
Regulatie Tipe	0:Ec	0:Ec
Pos Tipe Som[Y,N]	0:No	0:No
Som Min Cde [Y,N]	0:No	0:No
Totale openings Tijd	10000.0	10000.0
Totale gesloten Tijd	10000.0	10000.0
No Input	8	8
Start Tijd	FT=00:00	FT=00:00
Begin Overlapings Tijd	FT=00:00	FT=00:00
Einde Tijd	FT=23:59	FT=23:59
Transition Up Min/degrees	0.0	0.0
Transition Down Min/degrees	0.0	0.0
No Input Delta Calc	0	0

(Default value see picture)

Kp : Proportional factor expressed in milliseconds/mS

Kpz : Proportional factor expressed in milliseconds/mS in the "zone Kp"(around the Set),

KI : integration factor,

Kd : derivated factor,

Zone Kp : zone where the proportional factor can be changed to maintain a stability on the control,

Min Cde : a minimum relays command time, under this level the output command is not active.

Max Cde: a maximum relays command time of the sum of the whole fertilizer relays,

Min Pos : 0

Max Pos : 100

Regulation interval : 00:00:05, (fixed interval)

Overall Open Time : Relays command Time to switch the vent from 0 to 100%

Nr Input : the Ec input used for the regulation

Definition :

The Cde in milliseconds = $Kp * (Diff) + Ki * (Old Command) + Kd * (Diff - OldDiff)$

Where Diff = Set-Measure

OldDiff = Diff at old regulation interval.

Max Cde = 10000 for 2 fertilizer, in case of 3, the value should be 15000

Add Units and groups

From the Main Left Menu, select the button below:



And build the following Tree, using the (+) button in the toolbar:

Under Greenspec Process, add irrigation unit

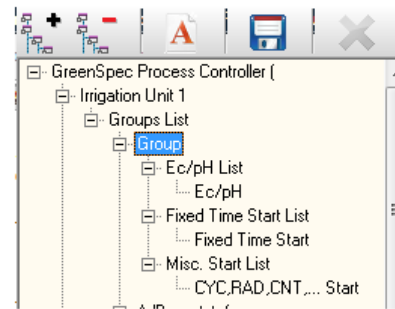
Select the unit added than add group List.

Select Group List, and add a group.

Note that

Each group needs absolutely the following tree to be able to run correctly.

So under group, add (Ec/pH List), (Fixed Time start List), (Misc Start List). And under each List add one component. The build schema should be the same as shown above.



Configuring the unit and the group

Program the output valves:

In the menu below, you need to program the valves name, number and the output name and number. Some other settings are needed in case that you use horticultural tables or drain function. Also you need to configure to each valves the number of gutters, the debit of each gutter. This is needed for the function debit control and alarm.

Valve Name	Valve Nr	Out Name	Out Nr	Debit theo	Nr In Debit	N Drip	I/h Drip	Flow pr	Hold Name	Hold Number
Kraan 1	1	O Kraan 1	20	10000.0	0	72	105.0	True		0
Kraan 2	2	O Kraan 2	21	10000.0	0	72	105.0	True		0
Kraan 3	3	O Kraan 3	22	10000.0	0	72	105.0	True		0
Kraan 4	4	O Kraan 4	23	10000.0	0	72	105.0	True		0
Kraan 5	5	O Kraan 5	24	10000.0	0	72	105.0	True		0
Kraan 6	6	O Kraan 6	25	10000.0	0	72	105.0	True		0
Kraan 7	7	O Kraan 7	26	10000.0	0	72	105.0	True		0
Kraan 8	8	O Kraan 8	27	10000.0	0	72	105.0	True		0
Kraan 9	9	O Kraan 9	28	10000.0	0	72	105.0	True		0
Kraan 10	10	O Kraan 10	29	10000.0	0	72	105.0	True		0
Kraan 11	11	O Kraan 11	30	10000.0	0	72	105.0	True		0
Kraan 12	12	O Kraan 12	31	10000.0	0	72	105.0	True		0
Kraan 13	13	O Kraan 13	32	10000.0	0	72	105.0	True		0
Kraan 14	14	O Kraan 14	33	10000.0	0	72	105.0	True		0
Kraan 15	15	O Kraan 15	34	10000.0	0	72	105.0	True		0
Kraan 16	16	O Kraan 16	35	10000.0	0	72	105.0	True		0
Kraan 17	17	O kraan 17	36	10000.0	0	72	105.0	True		0
Kraan 18	18	O Kraan 18	37	10000.0	0	72	105.0	True		0
Kraan 19	19	O Kraan 19	38	10000.0	0	72	105.0	True		0

The number of lines can be adjust with the standard button of the program (Add/delete items) lines in this case. (see first button on the toolbar above the table).

Configuring the unit

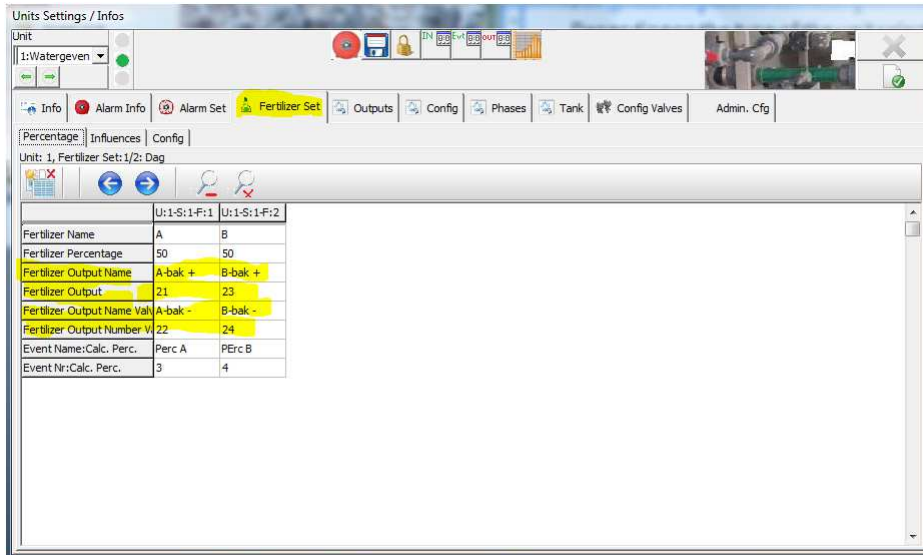
	U:1	U:2	U:3
Unit Name	Watergeven	Vullen spui	Vullen schoon
Unit Type [0:Venturi, 1:+/-]	2:PlusMinus,xEc,1pH	0:Venturi Ec,pH	0:Venturi Ec,pH
Nb Fertilizer Lines	2	2	0
Debit input number	11	12	0
Type Debit Input	1	1:Counter In	1:Counter In
Nbre of Seconds for Debit Aver	20	10	10
Nr Event Total Vol	0	0	0
Name Event Total Vol			
Nr Event Unit Debit	6	7	8
Event Unit Debit	unit 1 debit	unit 2 debit	unit 3 debit
Nr Event Pos 3WV Ecp	0	0	0
Name Event Pos 3WV Ecp			
Nr Input 3WV Ecp	6	0	0
Nr Event PosReg Ec	0	0	0
Name Event PosReg Ec			
Time Keep Valv On	00:00:00	00:00:00	00:00:00

Set the type of the unit and the number of fertilizers line. Also you can set the debit input of the unit

Program outputs of the unit

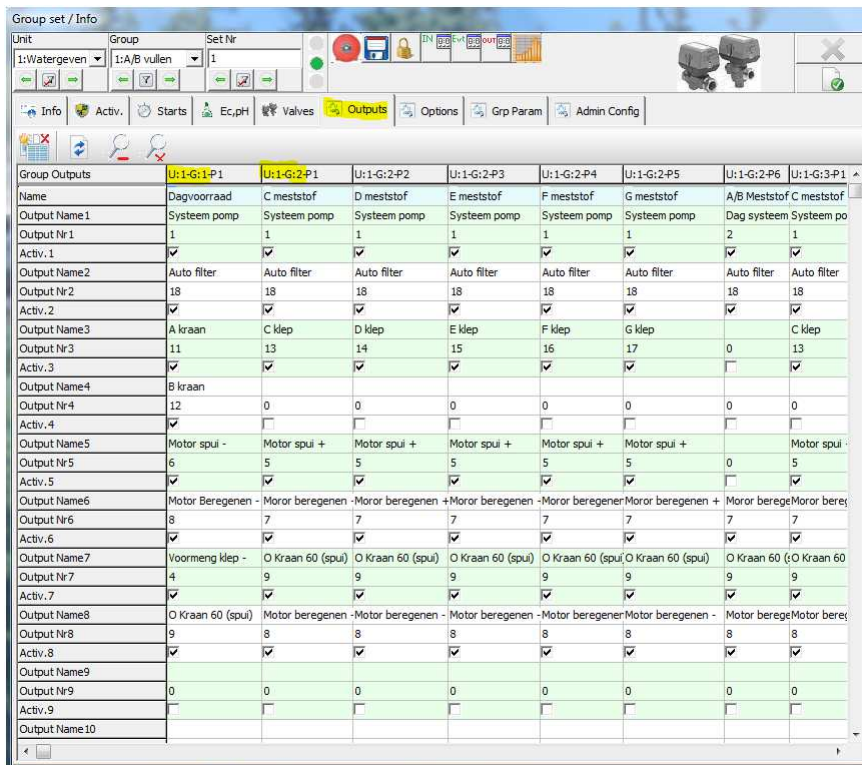
Depending on the type of the unit selected, you need to set the following:

	U:1	U:2	U:3
Alarm Output Name	Alarm Beregenen	Alarm vullen	Alarm vullen
Alarm Output Number	0	0	0
pH Venturi Output Name			
pH Venturi Output Number	0	0	0
pH ++ Output Name	PH++		
pH ++ Output Number	10	0	0
pH -- Output Name	PH--		
pH -- Output Number	11	0	0
Ec ++ Output Name	Ec ++		
Ec ++ Output Number	12	0	0
Ec -- Output Name	Ec--		
Ec -- Output Number	13	0	0
PostEc ++ Output Name	Open spui		
PostEc ++ Output Number	3	0	0
PostEc -- Output Name	Dicht spui		
PostEc -- Output Number	4	0	0
Base Output Name			
Base Output Number	0	0	0



Those schema are shown here to get an idea of where to program. Please refer to your output list to know where to fill your output number in each case.

Program output of the group



For each group you need to program the outputs pumps, and other valves or extra programation related.

How To add a Drain Line

The drain is affected to a Valve. This valve has to be set in one group.

The drain function give the information :

- the total volume drain of the day. This value is reset at Midnight
- the drain percentage of the day. This value is reset at Midnight
- the volume of the latest drain. This value is reset on the next start
- the drain percentage of the latest drain. . This value is reset on the next start

Affecting a Drain to a valve :

On the menu (Unit) , page (Config valves), select the row of the valve where the drain is received, and set the following values :

Nr In Drain Line : set the drain program input number. The drain input type is fixed to a liter counter (Pulse by x liter passed).

N Drip : enter here the number of (irrigation water drip) that the drain line receive drained water.

Name and Number of the event (Total volume drain)

Name and Number of the event (Actual Percentage drain)

Name and Number of the event (Total Percentage drain)

Name and Number of the event (Actual irrigation volume)

The volume drain of the valve = (Volume measure on the drain line)*(Number of irrigation Drip) / (Number of Drain Drip)

Affecting a Drain to a Group

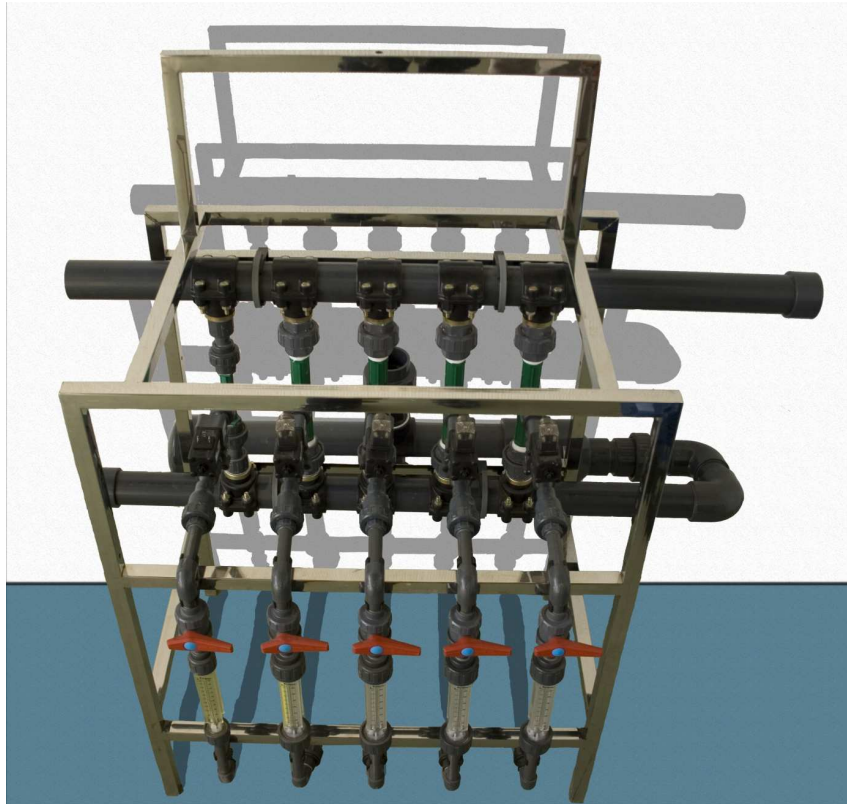
On the menu (Group), page (Group parameters), the following settings has to be set :

Nr Valv for Drain Counting : set the valve number that the drain counter has been set on

Perc Drain Event (Name,Number) : affect an event to the percentage drain of the group.

Getting Drain informations

On the menu Report Units, there is a page to see the (valve report) and the (group drain report). See paragraph menu (Report Units) for more details



Influences

Influence permit to user to set an influence on Settings depending on an input value or output state or Event value

Tool bar



Respectively :

Hide/show following 2 buttons Add/ delete an colon influence

Add an influence colon

Delete an influence colon

Refresh the described list of influence set

Copy in memory the programmed list of influence

Paste from memory a programmed list of influence

The title give you the exact position on compartment an equipment the influence are to be programmed.

Example 1

Here in this example the Radiation input number 71, add a value between 0 and 2°C more on the temperature vent when the radition measured is between 200 and 600 W/m². and only when the vents is on Lee side

Infl. on Temp	Infl. on Min Position	Infl. on Max Position	Infl. on P.Band
Influence 1, 1			
I. Name	1		
I. Nr	I. Nr 1		
Time Begin Set	su=07:13		
Time End Set	sd=18:18		
Infl.Min	200.0		
Infl.Max	600.0		
Infl.Value	2.0		
Infl Param	Lee		
Input Number	71:Strahlung, a		
Input Type	Inputs		

Example 2

In this example the value 25 for the Event of the screen mean that the screen is open (over the crops), so the maximum opening is reduced for 50%, on wind and Lee side.

On using Events, set on 'Infl max' the value of the event to make influence, here, the 'Infl. Min' is not in use

Infl. on Temp	Infl. on Min Position	Infl. on Max Position	Infl.
Influence 1, 1			
I. Name	1	2	
I. Nr	I. Nr 1	I. Nr 2	
Time Begin Set	FT=00:00	FT=00:00	
Time End Set	FT=23:59	FT=23:59	
Infl.Min	0.0	0.0	
Infl.Max	25.0	25.0	
Infl.Value	-50.0	-50.0	
Infl Param	Lee	Wind	
Input Number	1:Evt Scr0	1:Evt Scr0	
Input Type	Events	Events	

Example 3 :

In this example, the influence is on the status of the output 79 (a heating pump).

'Infl Min' and 'Infl Max' are not in use

When the pump is ON, (the output is ON) Lee and wind side Pband is increased for 5°,

Infl. on Temp		Infl. on Min Position		Infl. on Max Position		Infl. on P.Band	
Influence 1, 1							
	1			2			
I. Name	I. Nr 1			I. Nr 2			
Time Begin Set	FT=00:00			FT=00:00			
Time End Set	FT=23:59			FT=23:59			
Infl.Min	0.0			0.0			
Infl.Max	0.0			0.0			
Infl.Value	5.0			5.0			
Infl Param	Lee			Wind			
Input Number	79:Pumpe			78:Pumpe Ut			
Input Type	Outputs			Outputs			

Example 4

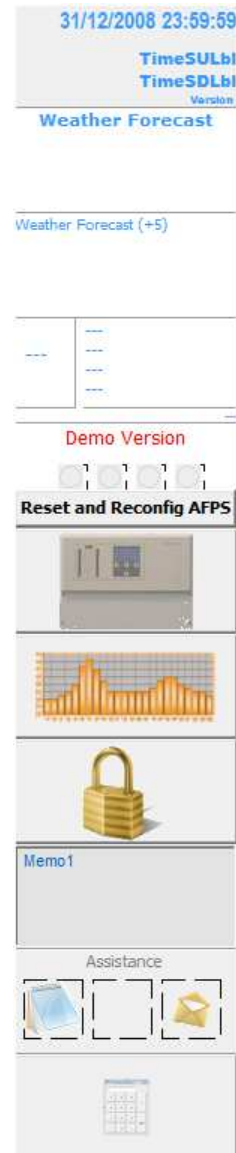
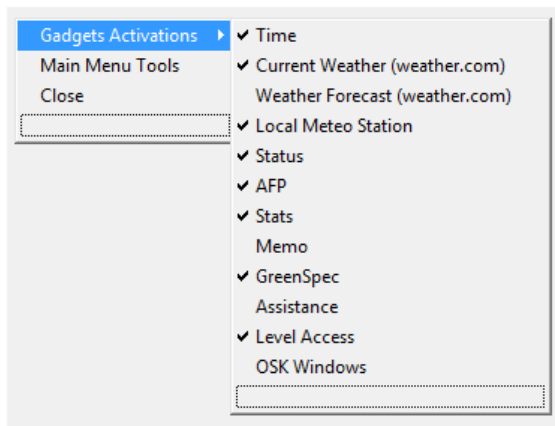
In this example the outside temperature between 5 and -2 influte the min water temperature by adding a value between 0 and 10°C respectively.

The influence is max for -2°C and less and null for 5°C and more.

Infl. on Afd.T.		Infl. on Min W.T.		Infl. on Max W.T.	
Influence Cpt 1,WT 1					
	1				
I. Name	I. O/s Temp				
Time Begin Set	FT=00:00				
Time End Set	FT=23:59				
Infl.Min	5.0				
Infl.Max	-2.0				
Infl.Value	10.0				
Input Number	68:Aussentemp.				
Input Type	Inputs				

Gadgets

The gadget menu is a page of the main screen of the GSC program. It is localized on the right side of the screen. It is possible to activate in this page different boxes that offer you some more comfort in the daily usage of the program.



The list above let you access to activate/deactivate the different boxes.

Time : box used to display the current computer time and date, the sun up/down, the version of the program

Current Weather : special for clients who have account at weather.com channel

Weather forecast: special for clients who have account at weather.com channel

Local Meteo Station : reading of the Outside temperature, Humidity, Deficit, direct radiation, radiation sum, wind speed, wind direction, rain detection, rain counting (mm). all this datas are configured in the menu [General, Meteo].

Status : The Red message “Demo Version” is displayed in case that the program is configured as Demo. The Leds indicate :

1. the status of the watchdog, (Red) = Control WD will Reboot the GSC (Green) = Control WD is OK,
2. the status of theAFP loop,
3. the status of the central alarm status,
4. the status of the hardware inputs/outputs communication.

AFP : access to the direct reading of the inputs/outputs. This menu is an easy way to check the status of the outputs, time sum of the output command, and manual command of an output. The inputs value with hardware name and program name. the display can be filtered by AFP.

Stats : access to the GSC Histo program



Level access: to change the usage level of the program

Memo : give information from the program usage and also some alerts

Assistance: this box is divided in 3 parts: Edit, status and emailing. The edit let you open an notepad file where you can put some notes. The status indicate if the note file is empty or filled with client note. The emailing send a short message to the Greenspec assistance that there is some notes from the GSC client to be checked.

OSK Windows : give access to the On-Screen Keyboard. This features is actually reserved for some clients and not activate till next version 0.6.6.

	1	2	3	4
Set Name	d Tc Tamb c1	d Tc Tamb c2	d Tc Tamb c3	Irr pump actv out 58
Activation	1:Yes	1:Yes	1:Yes	1:Yes
Date Begin	0	0	0	0
Time Begin	FT=00:00	FT=00:00	FT=00:00	FT=00:00
Time End	FT=23:59	FT=23:59	FT=23:59	FT=23:59
Type	1:1:Ev,2:In	1:1:Ev,2:In	1:1:Ev,2:In	4:1:Out,2:Out
Input 1	10	11	13	41
Input 2	36	38	6	47
Value	0.0	0.0	0.0	0.0
Value 2	0.0	0.0	0.0	0.0
Compare	24:Ev = In1-In2	24:Ev = In1-In2	24:Ev = In1-In2	14:In1>Val or In2>Val
Min On Time	00:00:00	00:00:00	00:00:00	00:00:00
Pause Time	00:00:00	00:00:00	00:00:00	00:00:00
Output Name				
Output Number	0	0	0	0
Activate Alarm	0:No	0:No	0:No	0:No
Delay before Alarm	00:00:00	00:00:00	00:00:00	00:00:00
Event Name	d Tc Tamb c1	d Tc Tamb c2	d Tc Tamb c3	Irrig Pump actv evt 27
Event Number	22	23	24	27
Delay before Stop	00:00:00	00:00:00	00:00:00	00:00:30
Delay before On	00:00:00	00:00:00	00:00:00	00:00:00
Max On Time	00:00:00	00:00:00	00:00:00	00:00:00
File AOutMpx				
Data Number	0	0	0	0

Activation : (Yes/No).

The activation is for the test validation, not for the complete function. So the Status of the colon will continue even after that time or day has been over passed.

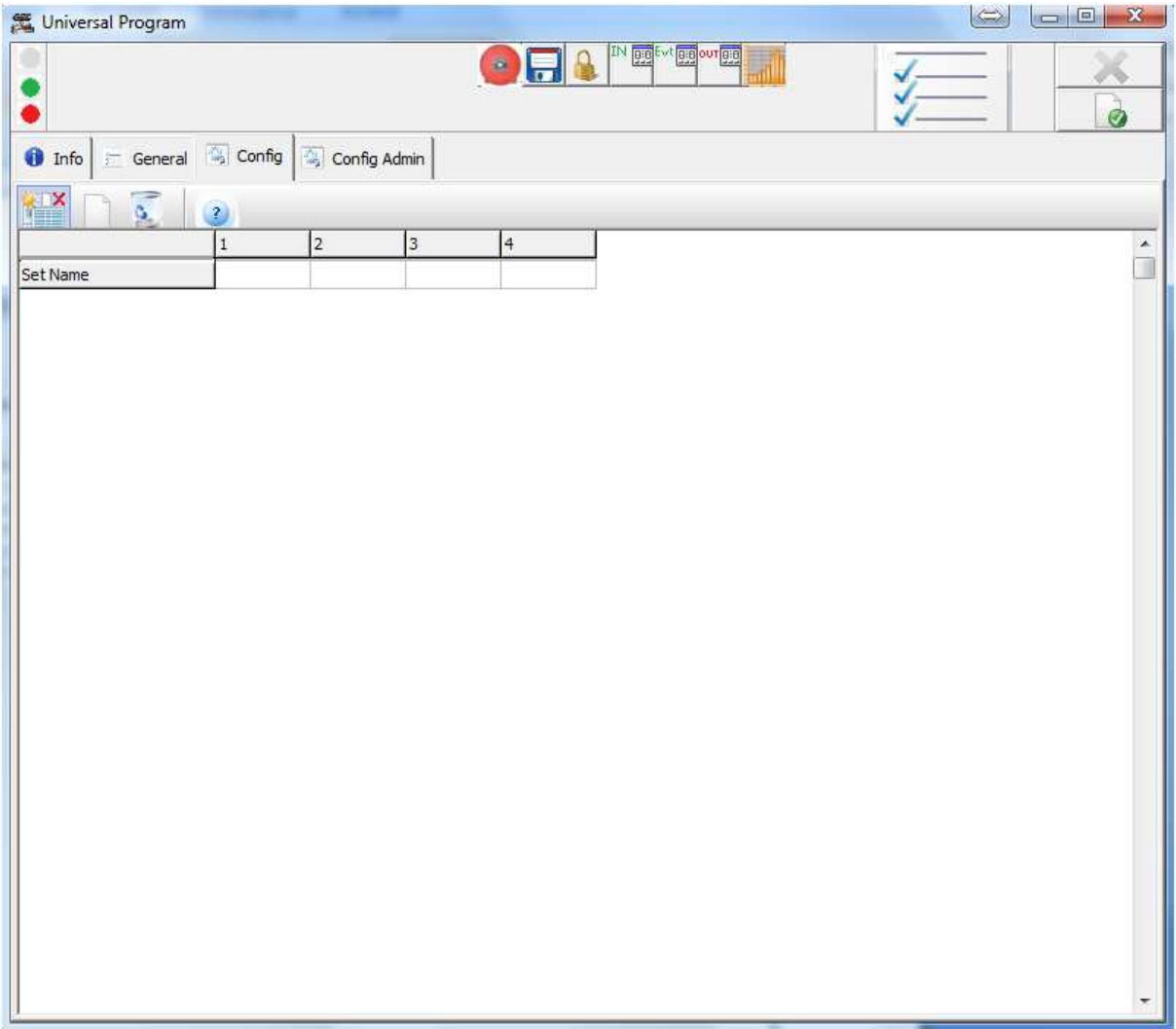
When the Activation is on No, the UP status is

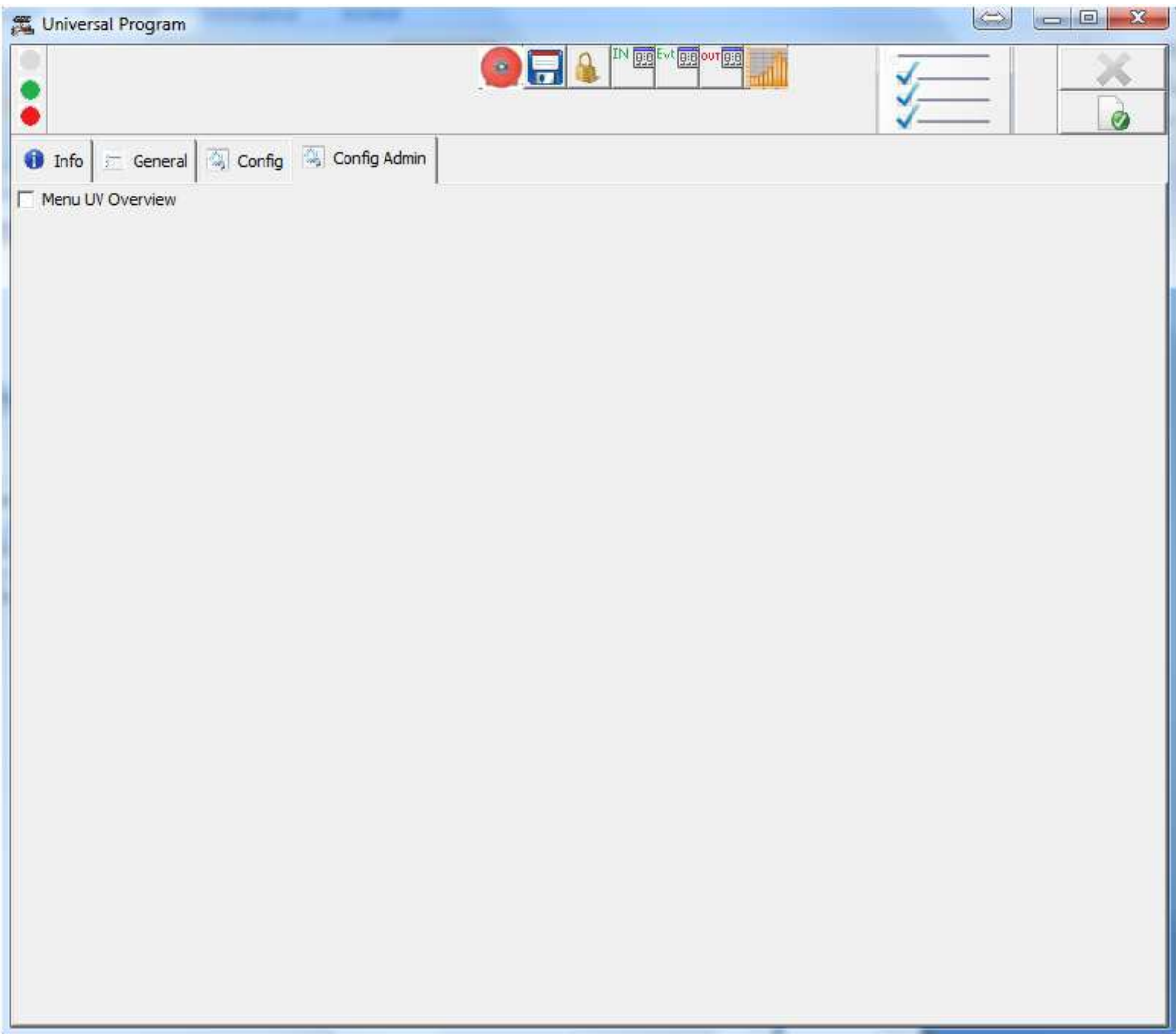
Universal Program

Info | General | Config | Config Admin

00:00

	1	2	3	4
Name	d Tc Tamb c1	d Tc Tamb c2	d Tc Tamb c3	Irr pump actv
Status	OFF	OFF	OFF	OFF
Counter	00:00:00	00:00:00	00:00:00	00:00:00
Minutes Counter	00:00:00	00:00:00	00:00:00	12:15:08

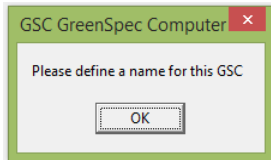




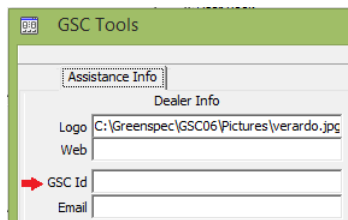
Menu GSC Tools

Path : (Tools), (GSC Tools)

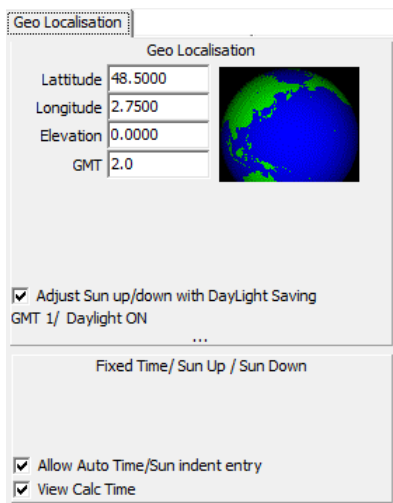
Note: On accessing to the menu Tools, the following message appear



. This is due that each GSC need an Id that it can be identify on email messages and in remote maintenance. Please fill in, the GSC serial number followed by the installer name and the client name. example : ((GSC0205: Installer Grower))



Geo Localization



Sun Up:: 06:09
Sun Dw:: 22:15

Latitude and Longitude settings is needed to calculate the Time of Sun Up and Sun Down. This calculation is calculated each day at midnight.

Elevation and GMT (**Greenwich Mean Time**) : is needed to make correction on the calculation formula.

Adjust Sun up/down with Daylight Saving : is needed to make correction for country using the Daylight saving procedure.

Fixed Time / Sun Up / Sun Down

Allow Auto Time/Sun indent entry : active the scroll menu to select the base of calculation of the Set period time everywhere in the program settings.

In default mode, the user has to enter the following texts : FT=, SU-, SU+, SD-, SD+, before the corresponding value.

View Calc Time : select the needed view

Uncheck to select the left picture or check to select the right picture

