

GREEN **SPEC**



Flexible affordable

Automatization for

Greenhouses and Agriculture

1- Greenspec focus

Greenspec supplies an automatization package that is very flexible in its set-up, working for small and large growers, where extensions can be made for low costs.

The central computer controls a wide package of I/O units and can control multiple sensors. We set no limits, with an extensive online manual your installer can adjust your software as needed to improve your crop.

Communication between the units is by optical fibre. Control of the system is made simple by internet or by mobile access, so remote adjustment by yourself, your installer or the Greenspec team is easy.



1- Concept Greenspec



Materials:

- Industriel PC (GSC)
- Distributed Inputs/Outputs module (AFP)
- Sensors



Software for Greenhouse
Automatization and control

- Ferti-irrigation
- Climate regulations
- Energy management
- Water management
- Personalized extra features possible



Production and development of
electronics in the Netherlands
since 2009



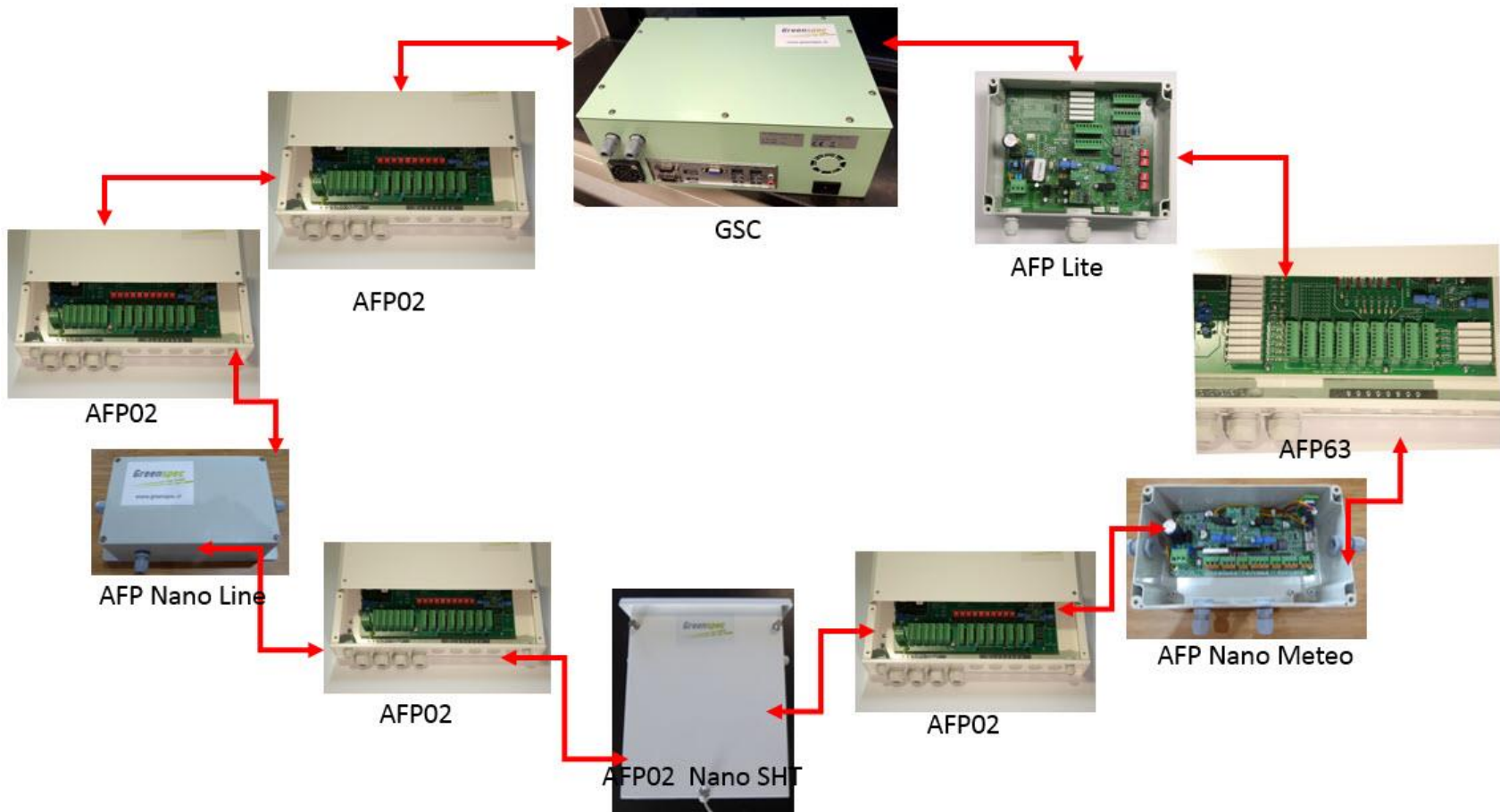
1- Dealers and Installations around the world

- 
- **USA**
 - **Costa Rica**
 - **Ecuador**
 - **Netherlands**
 - **France**
 - **Germany**
 - **Spain**
 - **United Kingdom**
 - **Croatia**
 - **Russia**
 - **Ukraine**
 - **Philippine**



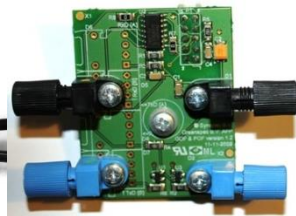
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2- Inputs/Outputs modules are connected by optical fiber Overview of the central PC (GSC) and all different I/O units (AFP)



2- Greenspec Hardware :

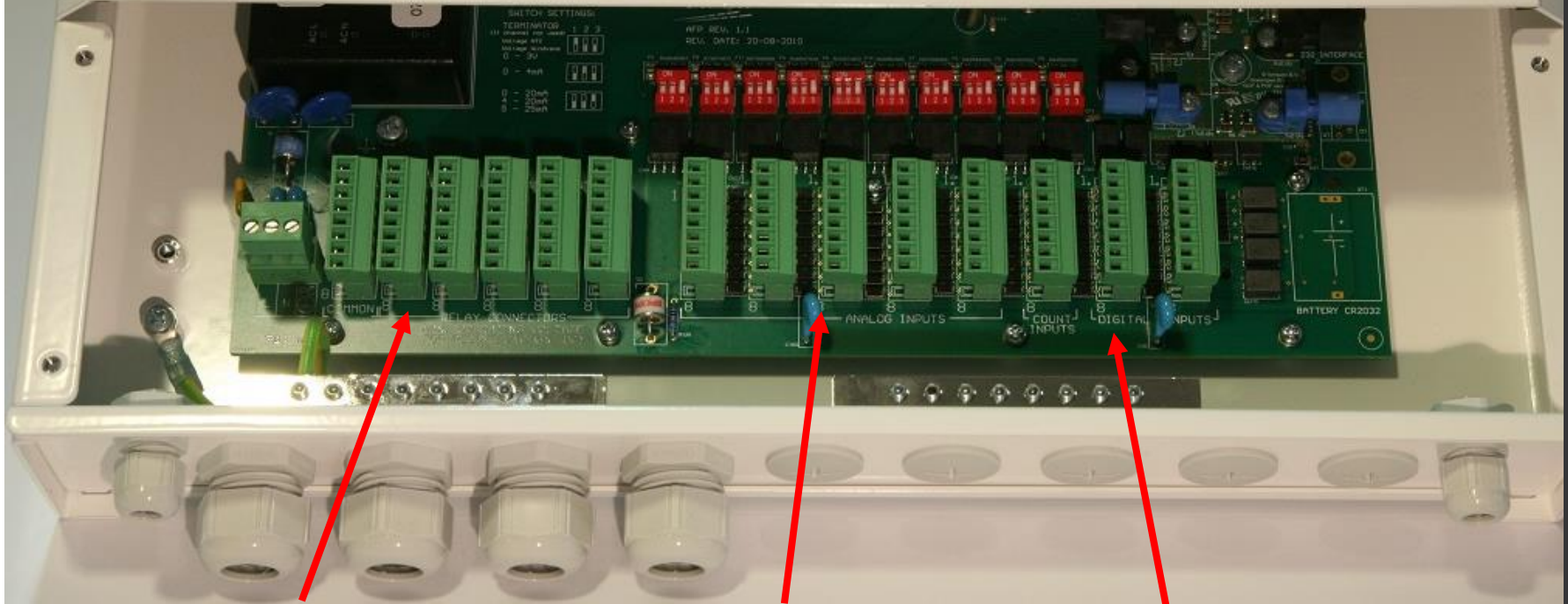
Simple opto com connexion : POF cable



POF cable: easy and affordable connection, electrical separation of all units, simple cutting tools
Distance between modules up to 120 meters

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2- AFP inputs/outputs



Digital Outputs :
Dry contact relays with
separate common

Analogue inputs
configurable: 0-3 or 10V
0-20 and 4-20 mA

Digital/Contact inputs
Counters/frequency
inputs

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2- Hardware a flexible range of I/O modules



AFP Standard 20 I / 20 O



AFP Lite extension 7 I / 5 O



AFP 63 O



AFP Nano:

- Dedicated single functions
- Modbus, RS485 communication connections



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2- Hardware : I/O modules can be installed distributed or centralized



Distributed I/O, installed next to electric boxes



Centralised I/O, installed as replacement of old controllers

2- A wide range of industrial sensors and many more can be used with our system



Greenspec pH plus electronics



Greenspec stable toroid EC

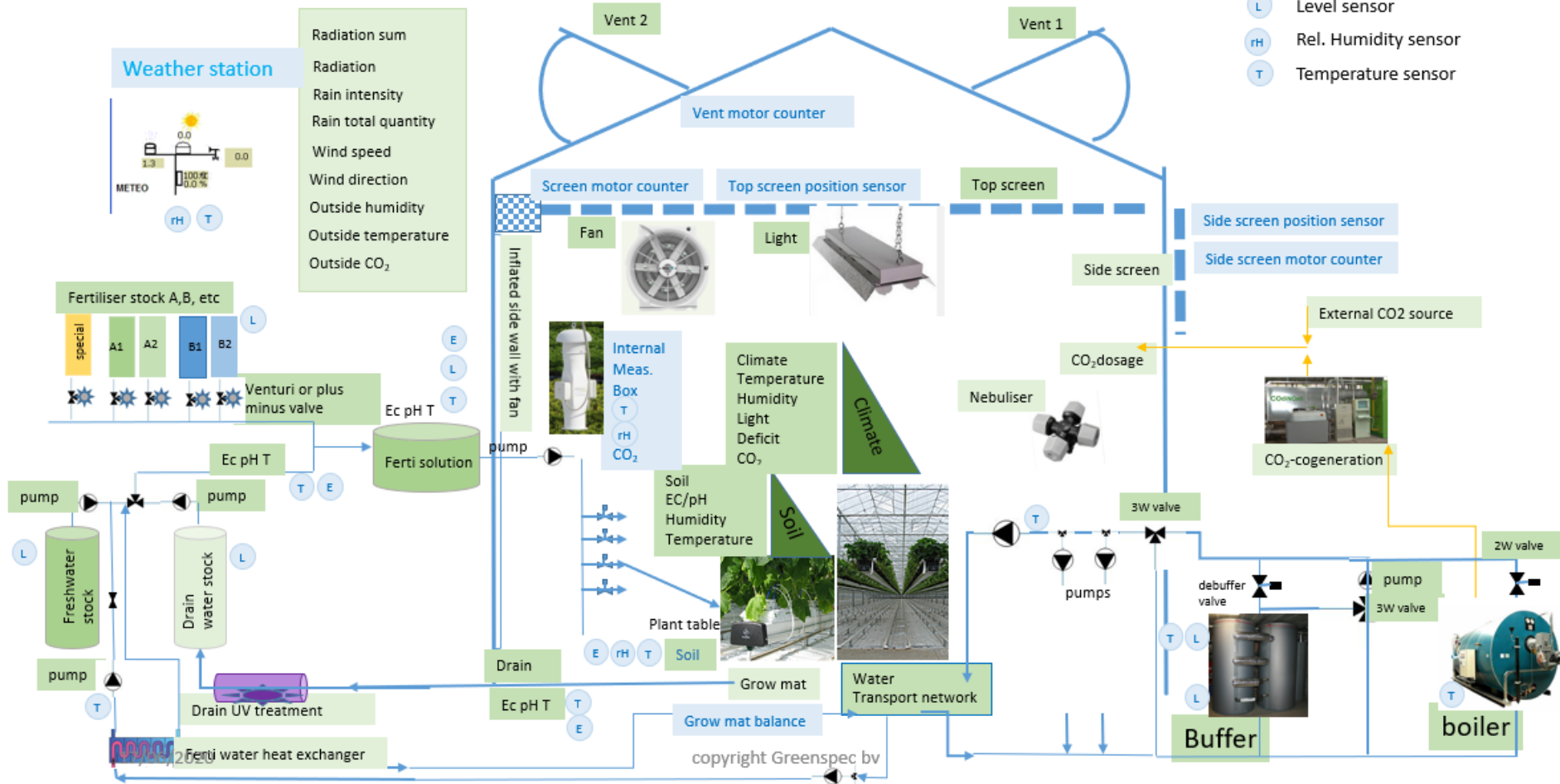


Supplied by Greenspec 10

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3- Greenspec Software functions

- E Ec/pH sensor
- L Level sensor
- rH Rel. Humidity sensor
- T Temperature sensor



3- Greenspec Software

Quick overviews for Ferti-irrigation and Climate

The screenshot displays the 'Menu Advanced Overview' in the Greenspec software. It features a grid of 16 compartments (Afd 1 to Afd 16) with real-time data for temperature (21.9°C), humidity (78.0%), and nutrient levels (4.3Def, 588ppm). A central 'Station Consignes/Infos' window shows a schematic of the irrigation system with a pump (SV1) and various valves. To the right, a 'Drain' control panel includes a table for monitoring and a 'Vannes' table for valve management.

Set	Calc	Mes.	Contrôle
1.4	0.9	0.6	
5.6	5.6	6.0	

Vanne	Vanne Nom	Set	Durée	Décompté	Count	Time
5	Vanne 5	00:10:00	00:01:38	00:08:22		
6	Vanne 6	00:10:00	00:10:00	00:00:00		
7	Vanne 7	00:10:00	00:10:00	00:00:00		
8	Vanne 8	00:10:00	00:10:00	00:00:00		



3- Greenspec Software Menus for Climate settings.

The screenshot displays the Greenspec software interface with several windows open. The main window shows a list of climate settings for various zones, including 'Energie 1' through 'Energie 6'. A 'Water Heating' configuration window is prominently displayed in the center, showing detailed parameters for five periods (Periode 1 to 5).

Water Heating Configuration Table:

Set Name	Afd 1/Afd 1-2	Afd 1/Afd 1-2	Afd 1/Afd 1-2	Afd 1/Afd 1-2	Afd 1/Afd 1-2
	Periode 1	Periode 2	Periode 3	Periode 4	Periode 5
Ambient Temperature	T=3.0	T=3.0	T=3.0	T=3.0	T=3.0
Min Water Temperature	35.0	35.0	35.0	35.0	35.0
Max Water Temperature	45.0	45.0	45.0	45.0	45.0
D.Temp Set 0 on Min Water	30.0	30.0	30.0	30.0	30.0
Time Begin	FT=00:02	FT=01:00	SU+60=06:18	SU+120=07:18	SD-185=19:02
Time Slope End	FT=00:55	FT=01:00	SU+90=06:48	SU+150=07:48	SD-180=19:07
Time End	FT=01:00	SU+60=06:18	SU+120=07:18	SD-185=19:02	SD-30=21:37
Humidity Set Infl	0:None	1:1. Set 1	0:None	0:None	0:None
O/s T. Set Infl	1:buitentemp inv	1:buitentemp inv	1:buitentemp inv	1:buitentemp inv	1:buitentemp inv
Rad. Set Infl	2:instraling Set 2	2:instraling Set 2	2:instraling Set 2	2:instraling Set 2	2:instraling Set 2
Rad.S. Set Infl	2:stralingsom invl 2	2:stralingsom invl 2	2:stralingsom invl 2	2:stralingsom invl 2	2:stralingsom invl 2

Other visible windows include 'Outputs P...', '11-12 Bus onder', and '7/06/20 10:28:47, Connect AFPS'. The interface also shows a sidebar with navigation options like 'General', 'Heat', 'Coverage', 'Compartment', and 'Ferti'.

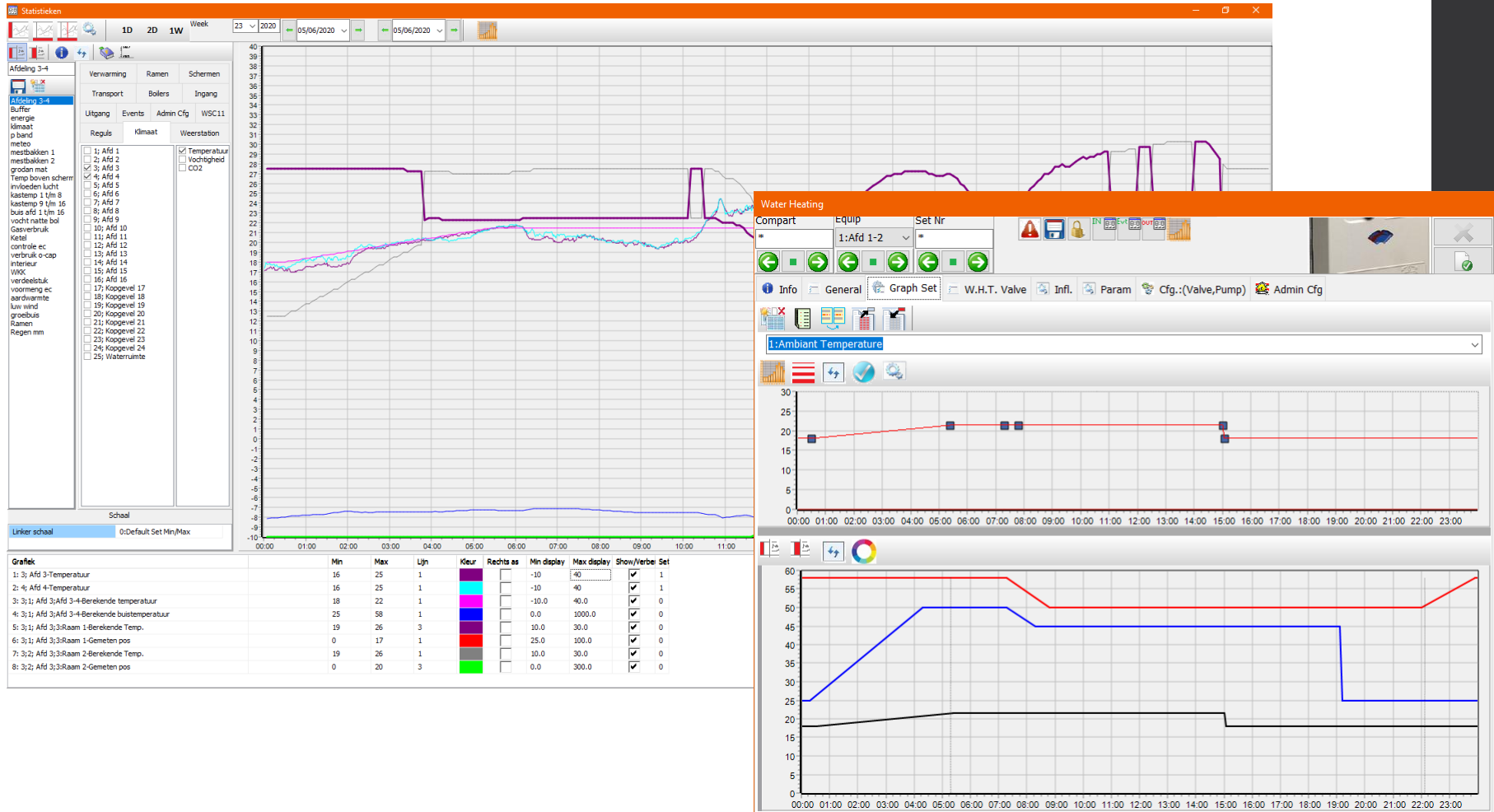
3- Greenspec Software. Menus for Ferti settings

The screenshot displays the Greenspec software interface for Ferti settings. The main window shows the configuration for Unit 2, Group 1, including fixed and cyclic starts. An 'Advanced Valves Set' window is open, providing a detailed view of the valve configuration.

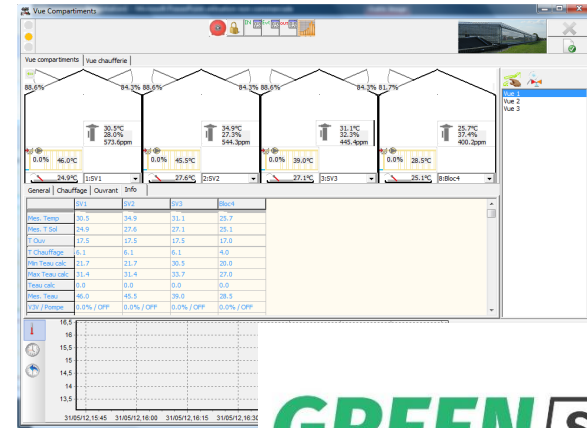
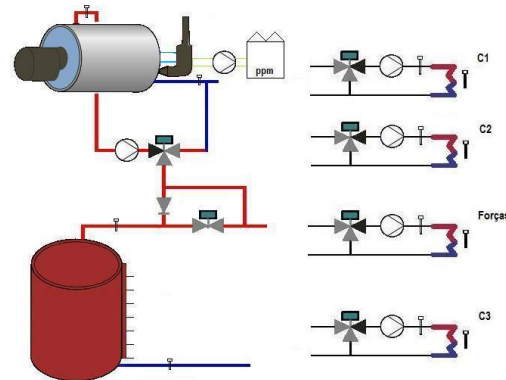
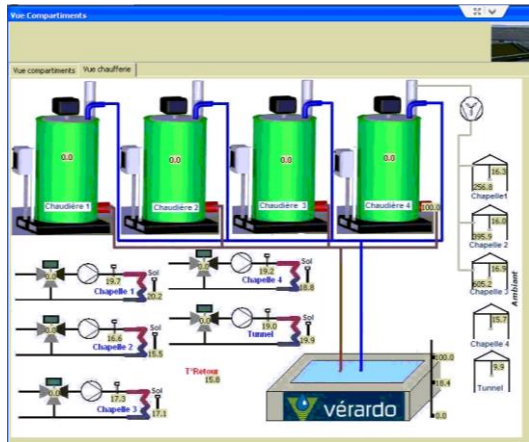
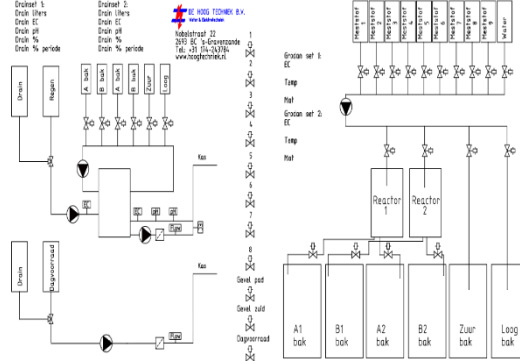
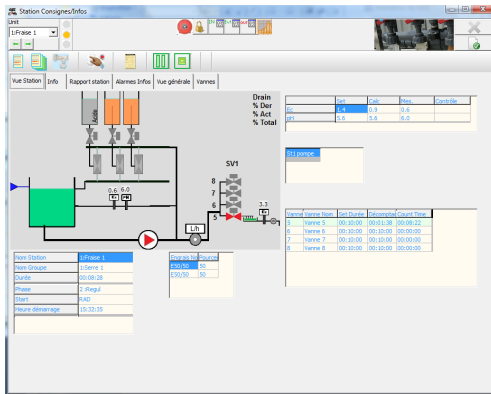
Valve Nr	Valve Nam	N Drip	l/h Drip	Debit theo
1	Kraan 1	9180	3.0	27890.0
2	Kraan 2	9180	3.0	27890.0
3	Kraan 3	10200	3.0	31300.0
4	Kraan 4	10200	3.0	31300.0
5	Kraan 5	10200	3.0	31300.0
6	Kraan 6	10200	3.0	31300.0
7	Kraan 7	10200	3.0	31300.0
8	Kraan 8	10200	3.0	31300.0
9	Kraan 9	10200	3.0	31300.0
10	Kraan 10	10200	3.0	31300.0
11	Kraan 11	10200	3.0	31300.0
12	Kraan 12	10200	3.0	31300.0
13	Kraan 13	10200	3.0	31300.0
14	Kraan 14	10200	3.0	31300.0
15	Kraan 15	10200	3.0	31300.0
16	Kraan 16	10200	3.0	31300.0
17	1:Filter sp 1		5.0	50300.0
18	2:Filter sp 1		5.0	50300.0
19	1:Inspoele 10200		5.0	50300.0
20	2:Inspoele 10200		5.0	50300.0



3- Greenspec Software. Graphical adjustable settings and measured curves



3- Software : All overviews of the application are personalizable



4- Greenspec services



- Technical Support for dealers
- Manual fully incorporated in software functions in all screens
- Remote assistance by TeamViewer or AnyDesk
- Learning sessions for technicians
- Maintenance sessions

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4- Simple tools to assist the installer and make remote data handling easy



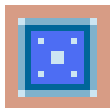
GscBackup: a tool to save all Gsc settings on a Greenspec server



Gsc Data Fetcher: a tool to interconnect I/O of Gsc via Ethernet



Settings copier: a tool to duplicate settings between compartments or irrigation groups



Exporting Data tools : for better analysis on remote or assistance via AI Data Server.

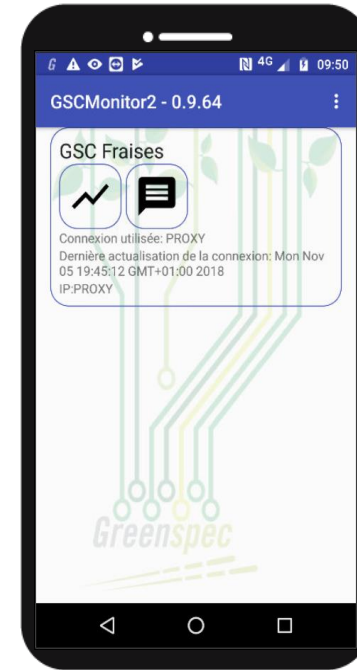
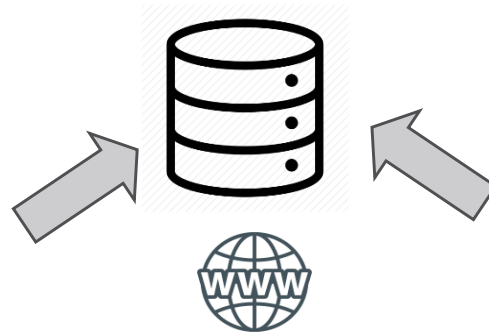
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4- GscMonitor, an Android app for assistance



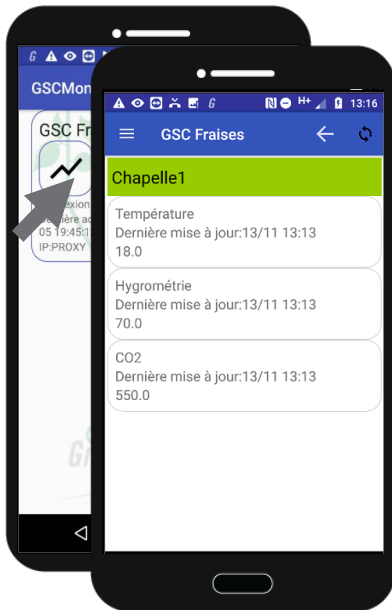
GSC (program Server)

Greenspec
Data Server (cloud)

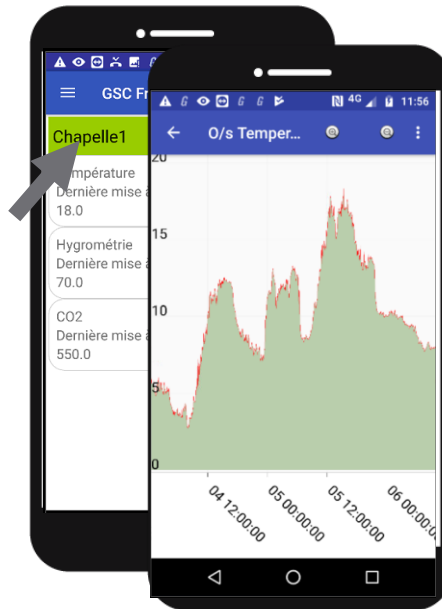


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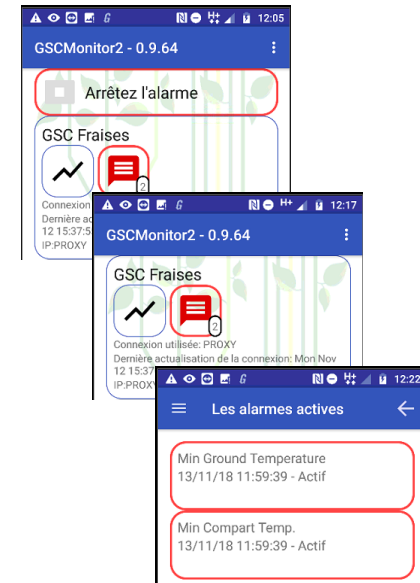
4- GscMonitor, remote reading



Actual data in greenhouse



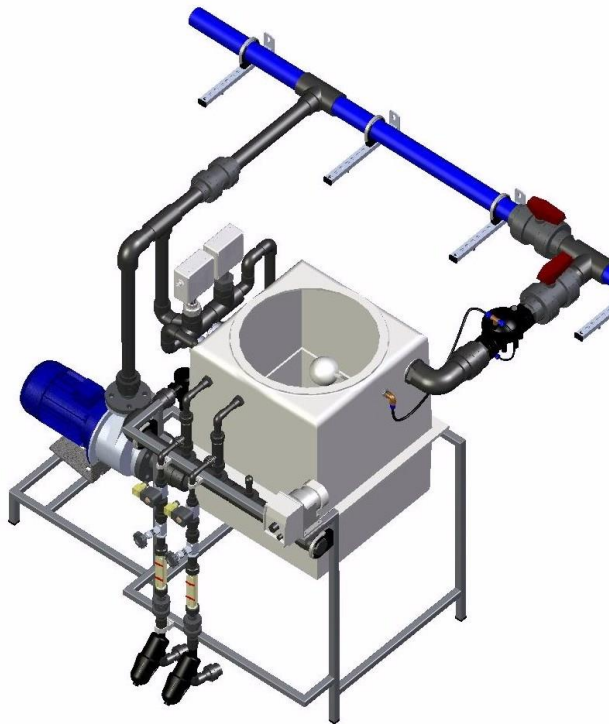
Graphs



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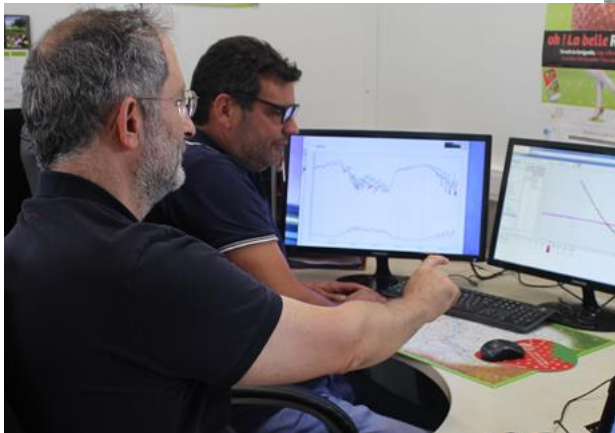
5- Views of Clients installations Different irrigation units systems



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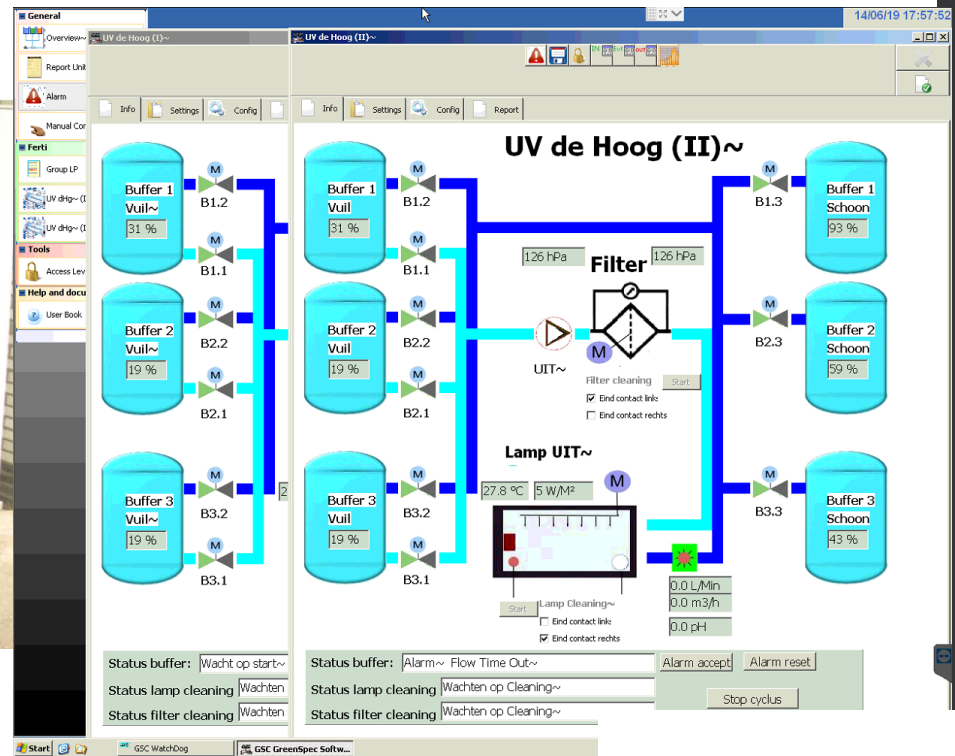
5- Views of Clients installations

Vents, Screens, Heating, Cooling Pad and Fan, Light, CO2 injections, etc.



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4 View of client installations: Dedicated UV program



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5- Views of Clients installations



All kind of greenhouse heating configurations, boilers, etc.



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Greenspec : summary of Advantages



- Distributed Inputs/Outputs modules with up to date electronics, Concept and production in the Netherlands,



- Module connected by optical fiber (POF) to a central PC running under embedded windows (IOT),



- Software is sold with a licence dongle, standard software updates and Remote assistance to installers are free of charges. Adjustments can be made by the local installer.



- Software Extension is included in the I/O module price, (No fixed number of compartments, ferti units, groups, valves, periods, etc.)



Greenspec
Partner for succes



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