AgrioCom offices

Shenzhen AgrioCom IoT Co.,Ltd

http：//www.agriocom.com

Address: Room 201, Bock A, No.1, Qianwan Road 1, Qianhaishen port cooperative District, Shenzhen（518052）, China

TEL: +86 15652960676

Nanjing Branch

Address: No. 50 Zhongling Road, Xuanwu disrict, Nanjing (210014), China

TEL: +86 15652960676

Austria Branch

Address：Krottendorfer Strasse 53/26, 8052Graz, Austria

Tel: +43 6643169288

AGRIOCOM

AgrioCom Product Catalog

LoRa and NB−IoT agriculture monitoring, irrigation control,greenhouse automation, Web platform

Digital Agriculture For Every Farm

INTRODUCTION

AgrioCom is the leading manufacturer of IoT technology for agriculture, producing new generation IoT devices using the most advanced technology of LoRa and NB-IoT. Our main products are monitoring, automation of irrigation and greenhouse and Web platform for agriculture.

We believe that digital agriculture must be affordable for every farm! AgrioCom was created by famous expert of IoT Mr. Vitaly Ignatovich and his technology team in Austria and China. This work is the result of 20 years of experience in the development for digital agriculture. We have been continuously improving our technology through adopting newest theoretical research and practical experiments.

AgrioCom was established in Shenzhen, China and has branches in Austria and Nanjing, our products will be sold to China, Europe, USA, Russia, India, Israel and more than 20 countries all over the world.

Every monitoring and controlling device has LoRa module programmed for sending data to the web server. Provision for NB-IoT module has been done from the beginning of development. Upon availability of NB-IoT from 4G/LTE providers, new models of devices will be released with full support of NB-IoT communication. It will have the same protocol and replacement from LoRa to NB-IoT will be completely seamless.

Having LoRa or NB-IoT module on the device will make it more economical and reliable than GPRS or 4G modem. Removing the need of the base station decreased cost of development, production, deployment and support. It makes our products more advanced and cheaper than other similar devices.

All devices are Internet enabled. Using our central web platform Agri Commander, it is possible to have full control of your farm from any location in the world using any device connected to Internet.

Thank you for choosing AgrioCom as your international partner, it is our pleasure to provide you with the most advanced technology and best quality service!

CONTENT

PRODUCT OVERVIEW

We believe digital agriculture must be affordable for every farm! To achieve this, we have created simple and reliable IoT devices for monitoring, automation or hybrid with both functions and web platform that implements most important functionality for growers! AgrioCom monitoring device can make any sensor become IoT. Automation devices can control valves and relays and allow automation of irrigation, fertigation and greenhouse. Web platform is your command center that gives you easy and quick access to all devices and features.

01 *LoRa and NB-IoT: all our devices use LoRa and NB-IoT technologies for Internet data transfer, have the same protocol and replacement from LoRa to NB-IoT will be completely seamless.*

04 *AgrioValve: simple and low-cost automation device, controls 2 irrigation valves through getting commands from Agri Commander (Page 10).*

02 *AgrioSens: advanced monitoring device, sending data to web server (Page X).*

05 *AgrioPro: hybrid of monitoring and automation device, can connect any kinds of sensors, and control irrigation valves and relays (Page 10).*

03 *Agri Commander: our web platform, collects, analyses measured data and sends control commands to automation devices (Page 10).*

06 *Customer: can have full control of his/her farm from any location in the world using any device connected to Internet.*
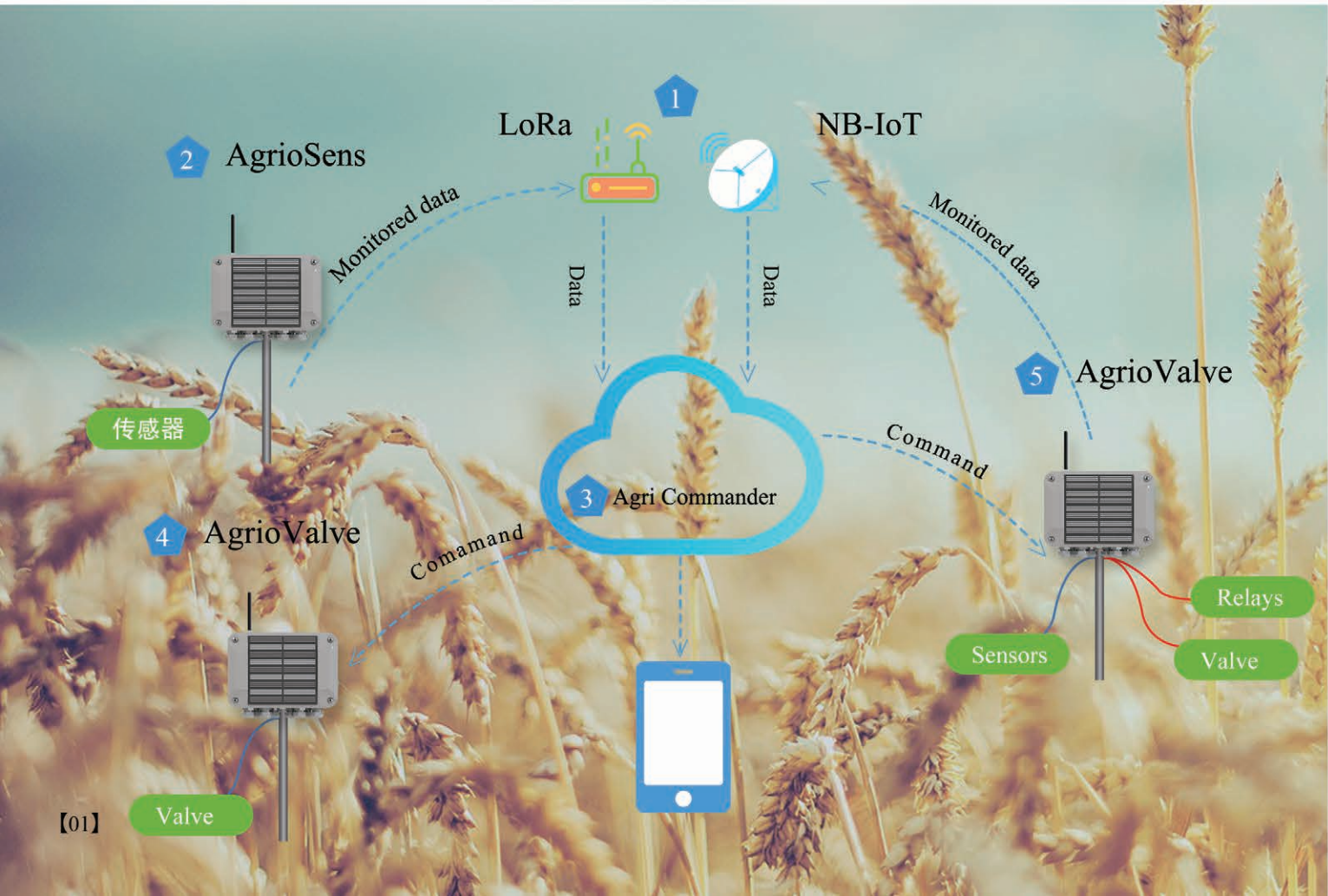
Product advantages

1. New communication Lora & NB-IoT

AgrioCom offers great networking capability with lowest cost of support, LoRa and NB-IoT. LoRa is currently available communication technology for IoT. It doesn´t need any infrastructure and SIM card. NB-IoT is the future communication technology for IoT, supported by the world biggest GSM providers.

3. Open sensor interface

AgrioSens and AgrioPro can connect different kinds of sensors to the same inputs. Any kind of sensor combinations are possible.
This feature saves the cost and gives the customer great flexibility. Any kind of configuration can be built according to application requirements.

5. Zero configuration

All monitoring and automation devices come completely configured and ready to use. After installation, they automatically start measuring and sending data.

7. EU quality standards

All our products have been developed in Europe and produced by EU standards in China.

2. Low cost and High quality

Main advantage of AgrioCom products is low cost and high quality. AgrioCom devices are perfect for all farms that are willing to build digital agriculture.
Why AgrioCom devices are more economical
-LoRa and NB-IoT communication: low cost of hardware; Not contract.
-Low power: no need of expensive battery and solar panel
-Advanced technology: low installation and maintenance cost
-Open sensor interface: select most economical sensors on market.
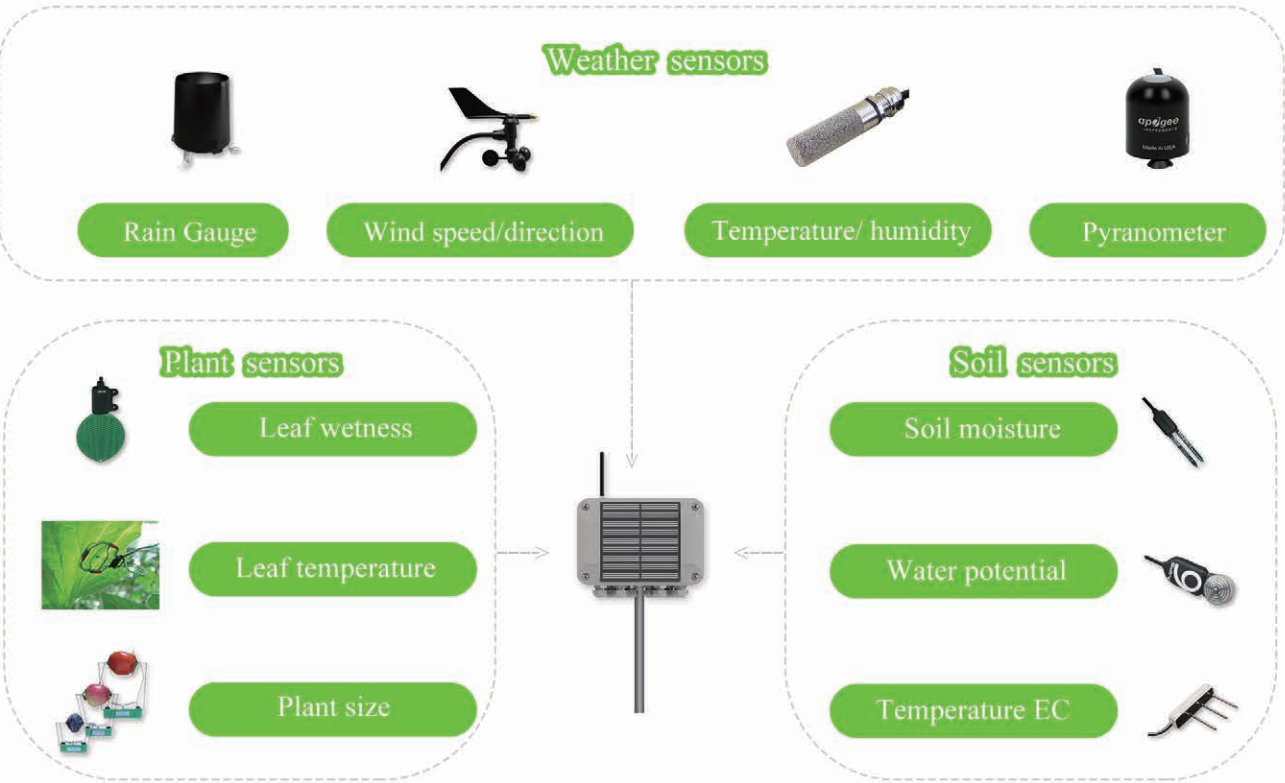
4. Easy to use & install

All devices have simple and clear design, they are easy to operate. Installation can be done by the customer. All parameters can be setup on the Web platform.

6. New generation of Web platform

Agri Commander web platform is your command center that gives you easy and quick access any time to all devices and features. It can be accessed from laptop, tablet and mobile phone.

Main applications

1. Weather, soil and plants monitoring

Weather sensors
- Rain Gauge
- Wind speed/direction
- Temperature/ humidity
- Pyranometer

Plant sensors
- Leaf wetness
- Leaf temperature
- Plant size

Soil sensors
- Soil moisture
- Water potential
- Temperature EC

Data monitoring

Monitoring is the first step of digital agriculture. Continuous analysis of data allows imroving all aspects of growing process, keep plants healthy, reduce the use of fertilizers and pestisides and improve the yields. Many applications can be implemented using data monitoring.

- Plants pest and disease models – calculation of probability of pests and diseases and prevent them
- Water balance – optimization irrigation
- Early warnings – sending of warnings on different conditions, such as frost
- Disaster monitoring – forecast of frost, drought and flood

2. Irrigation automation

AgrioCom provides 2 devices for irrigation automation.

Agri Commander

(1) AgrioValve is very simple and economical. It can control 2 irrigation valves. It is suitable for small and middle size farms that would like to optimize irrigation and save valuable resources. For more details read chapter AgrioValve and product manual.

(2) AgrioPro can control 4 irrigation valves, pumps and fertigation. It is suitable for large fields with complex infrastructure and allows full automation of all irrigation devices.

For more details read chapters AgrioPro and AgrioValve and product manual

3. Greenhouse automation

AgrioCom provides a very simple and economical solution for controlling the most important parts of greenhouse. AgrioPro is a small hybrid station that have monitoring and controlling functions. It can control 4 irrigation valves and 4 differnt electrical devices. Customer can choose one of two modes for controlling greenhouse devices.

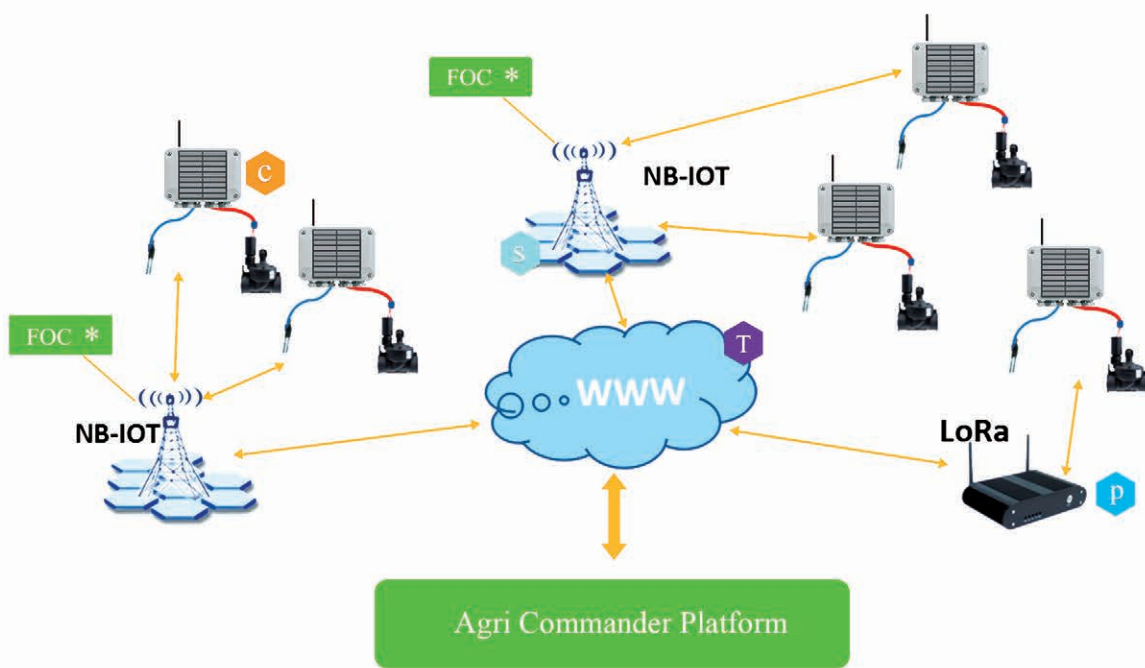| Using time plan	Using sensors data

Devices will be swtiched on/off at predefined time. For example, roof cover can be opened at 8:00 a.m. and closed at 16:00 p.m.

AgriCommander analyses sensors data according to customers requirements. When conditions are met, it switches on/off the corresponding devices.
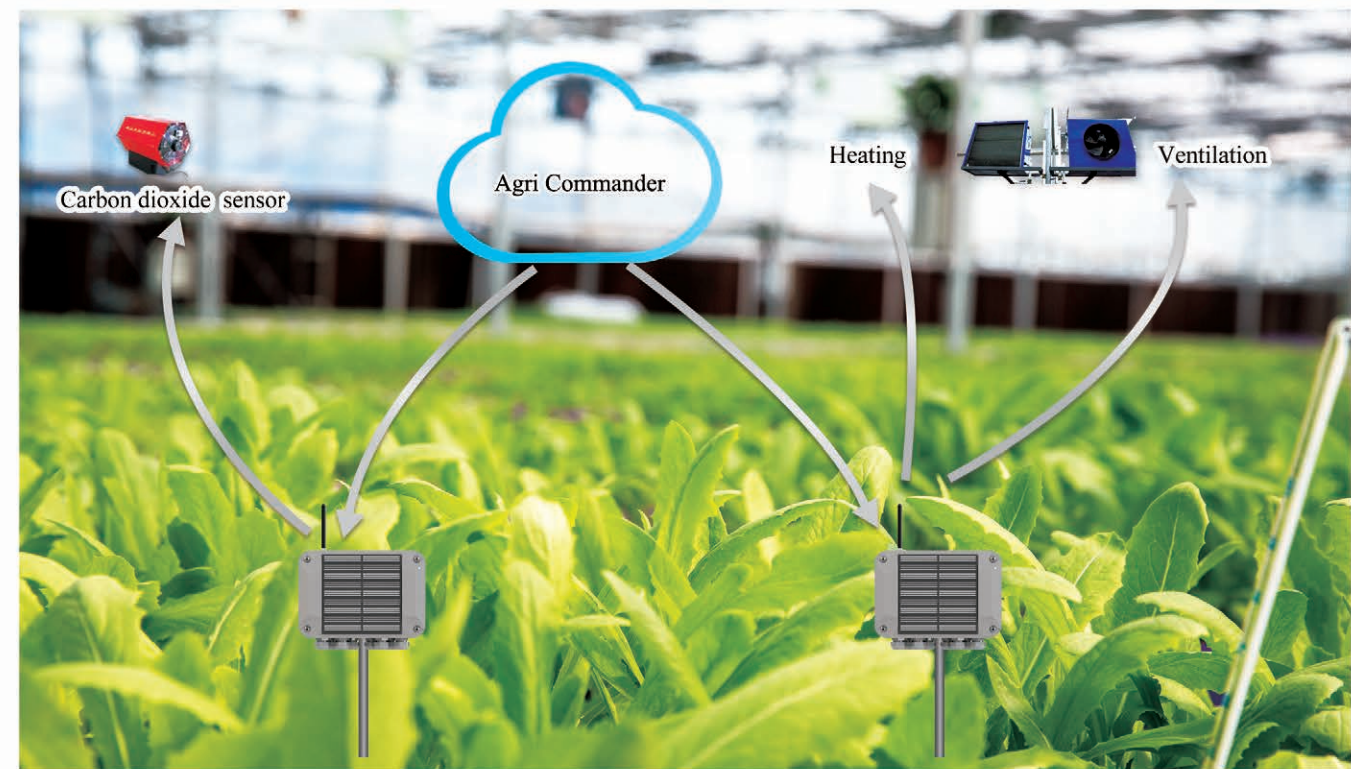
Principle of work

T	Internet	P	LoRa	C	Hybrid station	S	NB-IoT tower	FOC *	Free of charge infrastructure

After installation, all devices automatically start communicating with the Agri Commander web platform. They send data from sensors to web application. Web application sends configuration data and commands to devices.

In case of using NB-IoT, it does not need any extra communication devices. In case of using LoRa, one router must be installed per 5-10 Km area. Router is provided by AgrioCom and can be installed at any place that has power and internet connection. If there is no internet connection in the area, 4G - LoRa router can be used.

Communication range is 5-20 Km depending on comunicaion channel and environment. Communication is completely transparent and automatic.Customer can configure all functions from Agri Commander web platform.

AgrioSens: Wireless Sensor Hub

AgrioSens is climate, soil and plants monitoring device for agriculture. It has 6 universal sensor inputs. Any kinds of sensors can be connected to the same input. Sensors from different suppliers can be used without any changes. Configuration of sensors is done on the web application.

Device continuously sends data directly to the web server. Sending interval can be few seconds, which makes it real time. Internet connection does not require SIM card and GSM contract. Powered by 3 x AA batteries, it can work autonomously for 1 – 3years. Battery can be easily replaced. Solar panel is not needed.


AgrioSens
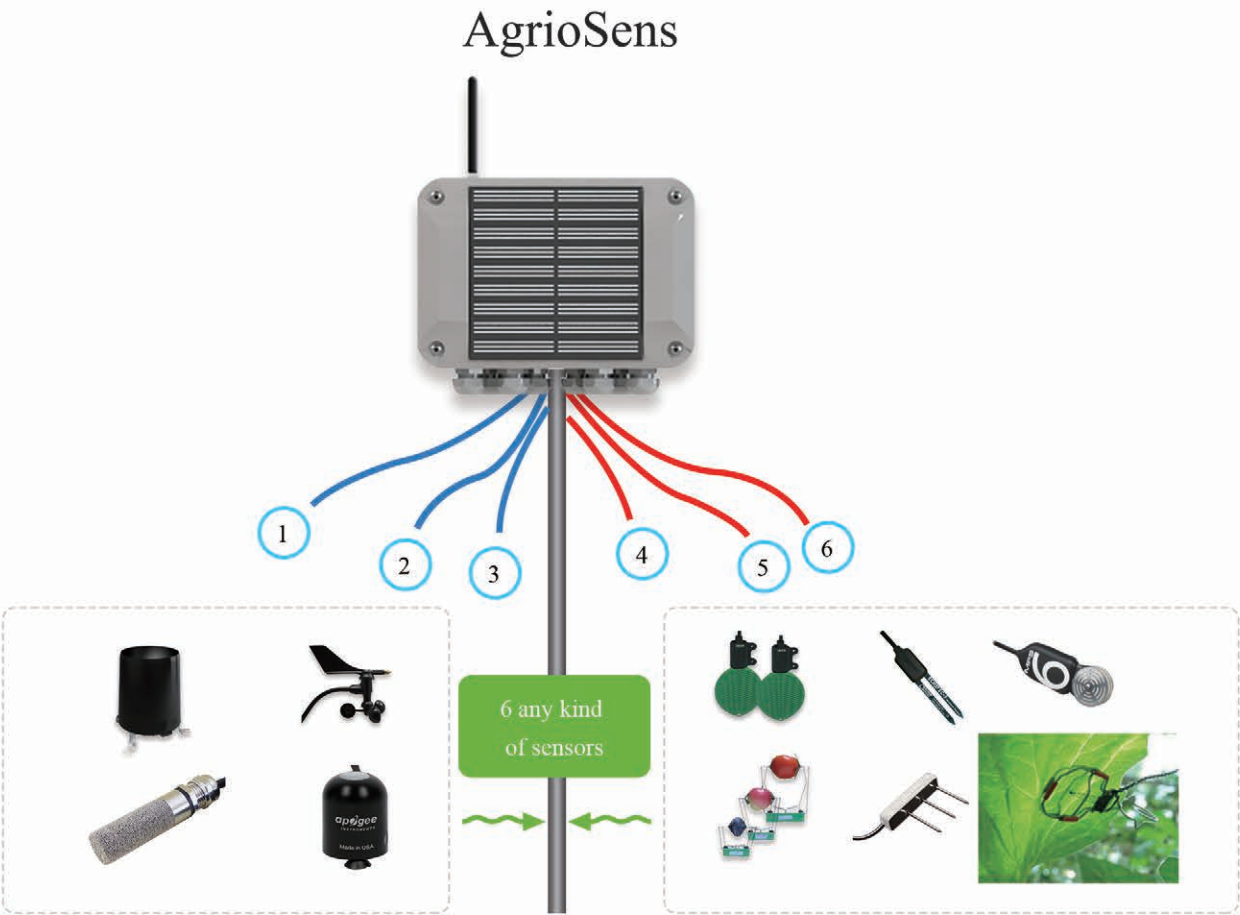
Technical parameters

Model	ACSS12
Sensor inputs	
Universal inputs / sensor types	6 / Analog, TTL, SDI-12, 1-Wire
Wind speed / water meter	1
Rain gauge / water meter	1
Communication	
Communication standard	LoRa / NB-IoT
Communication interval	10 ~ 60 min①
Communication distance	5 ~ 10 km
Power supply	
Battery	3 x Alkaline AA batteries
Supply Voltage	1.5V
Environmental	
Temperature range	-20℃~ +80℃
Protection class	IP-65

① In case of LoRa, communication interval depends on the distance between device and router.

AgrioValve: IoT Irrigation Valve

AgrioValve
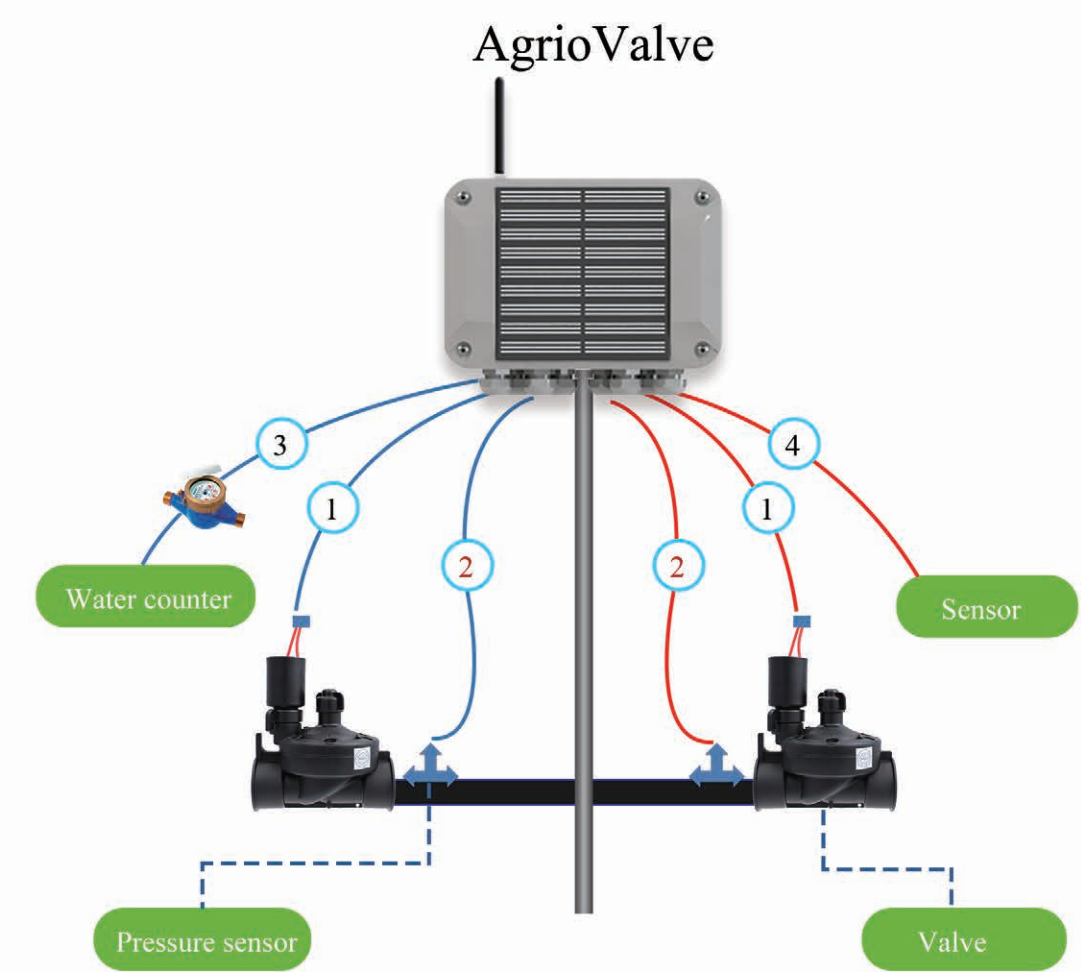
This device controls 2 latching valves, connect 2 water pressure sensors, 1 water counter and 1 any kind of sensor. Valve can be switched on / off directly from Agri Commander web platform either manually or automatically by software.

Powered by solar panel and rechargeable battery, it provides energy independent functionality under all weather conditions. Internet connection does not require SIM card and GSM contract.

Small form factor, low price and low energy consumption makes it perfect solution for small and middle size farms using drip irrigation

Technical parameters

Model	ACSV12
Outputs / Controlling	
Number of valves	2
Type of valves	Latching valve 9 ~ 18V DC
Sensor inputs	
Sensors	1 x analog or TTL or 1-Wire
Pressure sensor	2 x analog 0 ~ 5 V
Water counter	1个
Communication	
Communication range	5 ~ 10 km
Communication standard	LoRa / NB-IoT
Communication interval	10 ~ 60 min 1
Power supply	
Battery	3 x rechargeable AA batteries
External power supply	12V
Solar panel	
Environmental	
Temperature range	-20℃ ~ +80℃
Protection class	IP-65

① In case of LoRa, communication interval depends on the distance between device and router

AgrioPro: Hybrid IoT station

> "
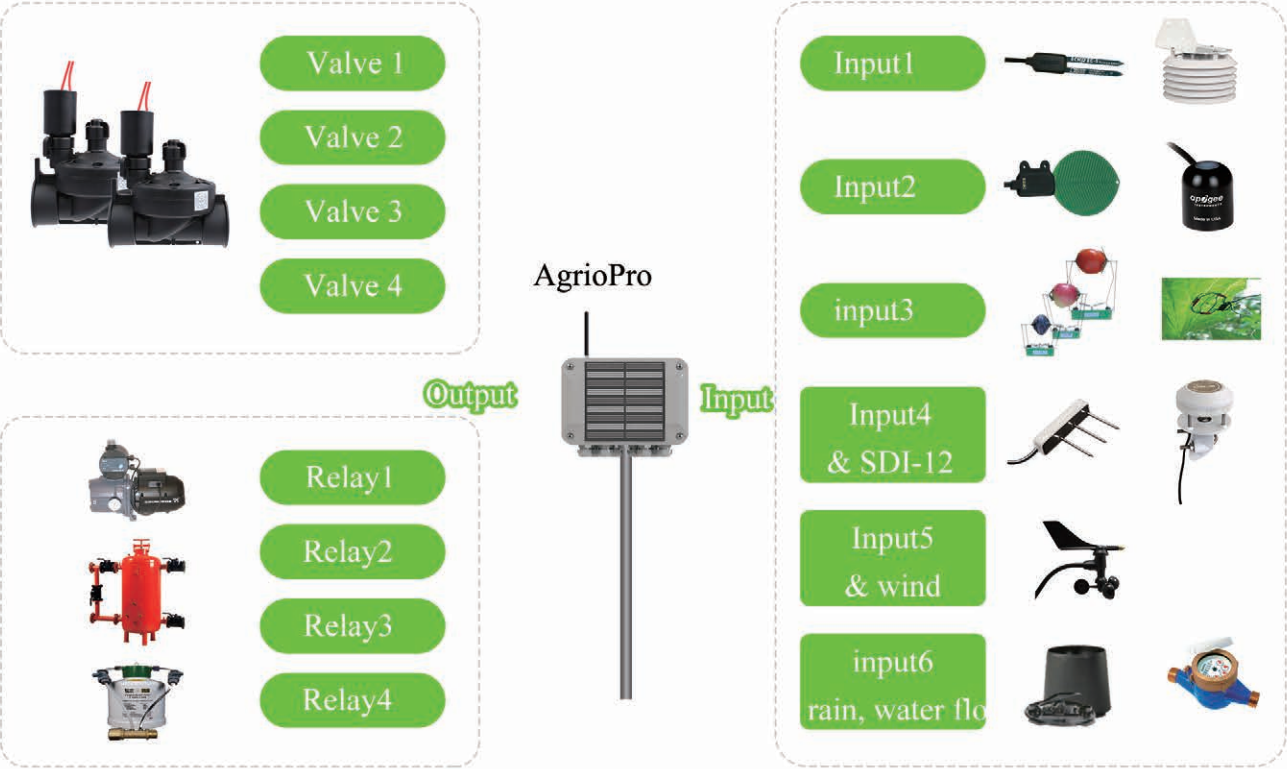
This device will be available in 2019, it has 6 universal inputs for any kind of sensors and can be configured for different applications. Output options include 4 relays and 4 valves. Relays can control any kind of devices, valves can control irrigation systems. With AgrioPro, full automation of drip irrigation can be archived, including fertigation and pump control. Control can be done manually, by scheluder or by using sensor base irrigatin software from other companies.

Powered by solar panel and rechargeable battery, it provides energy independent functionality under all weather conditions around the year. Internet connection does not require SIM card and GSM contract

Technical parameters

Model	ACHS21
outputs / Controlling	
Number of valves	4
Type of valves	Latching valve 9 ~ 18V DC
Number or relays	4个
Type of relays	120V AC/DC
Sensor inputs	
Universal analog/digital inputs	6: Analog, TTL, SDI-12, 1-Wire
Rain gauge / water meter	1
Wind speed / water meter	1
Communication	
Communication standard	LoRa / NB-IoT
Communication interval	10 ~ 60min ①
Communication distance	5 ~ 10km
Power supply	
Battery	
Solar panel	
Environmental	
Temperature range	-20℃ ~ +80℃
Protection class	IP-65

① In case of LoRa, communication interval depends on the distance between device and router

Agri Commander platform

Agri Commander web platform is your ariculture command center that gives you easy and quick access to all devices and features. It makes your work fast and efficient using any device with internet connection. AgrioWeb can be accessed from laptop, tablet or mobile phone. Very little data volume is required. It can work with normal Internet connections.

Clean and modern design provides intuitive access to all core functions of web application. Every user account is password protected. Data can only be accessed by authorized customers.

1. Configuration and overview
All functions of AgrioCom IoT devices can be configured from the web application. It shows status of all devices and allows to

2. Data presentation
Web application allows viewing all kinds of data from sensors in tabular or graphical form.

3. Data analysis
Many extra applications are available, such as local weather forecast, warnings, and plant disease models.

4. API
AgrioWeb provides special interface (API) for other companies to create cloud applications. Customers can use API to implement their own platformsAPI
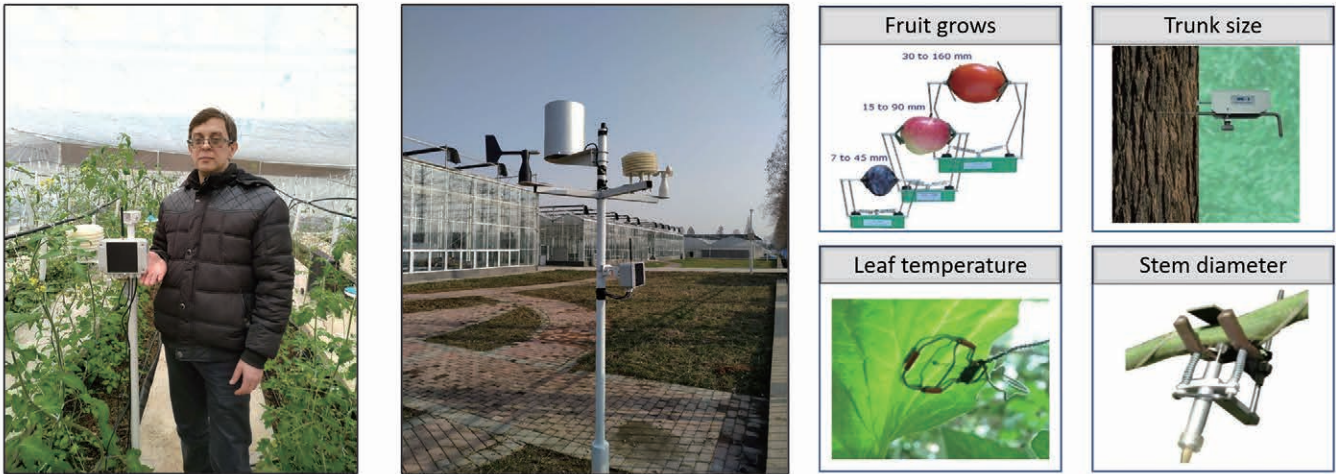
5. Automation
All automation devices are directly controlled by Agri Commander. Status of every device can be checked and changed instantly.
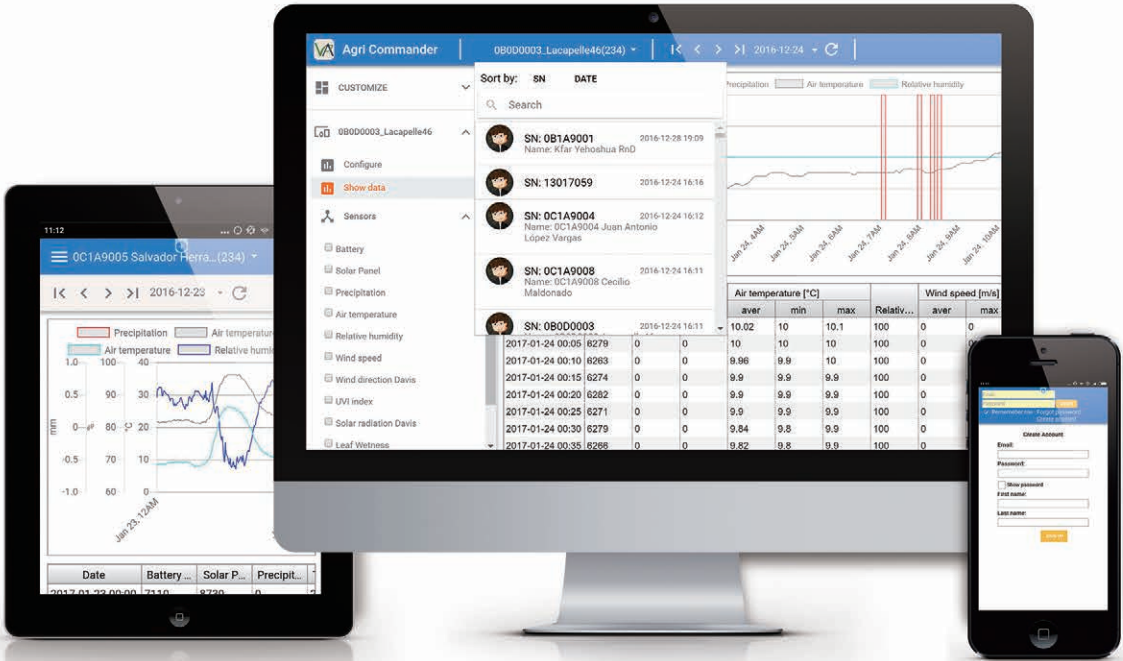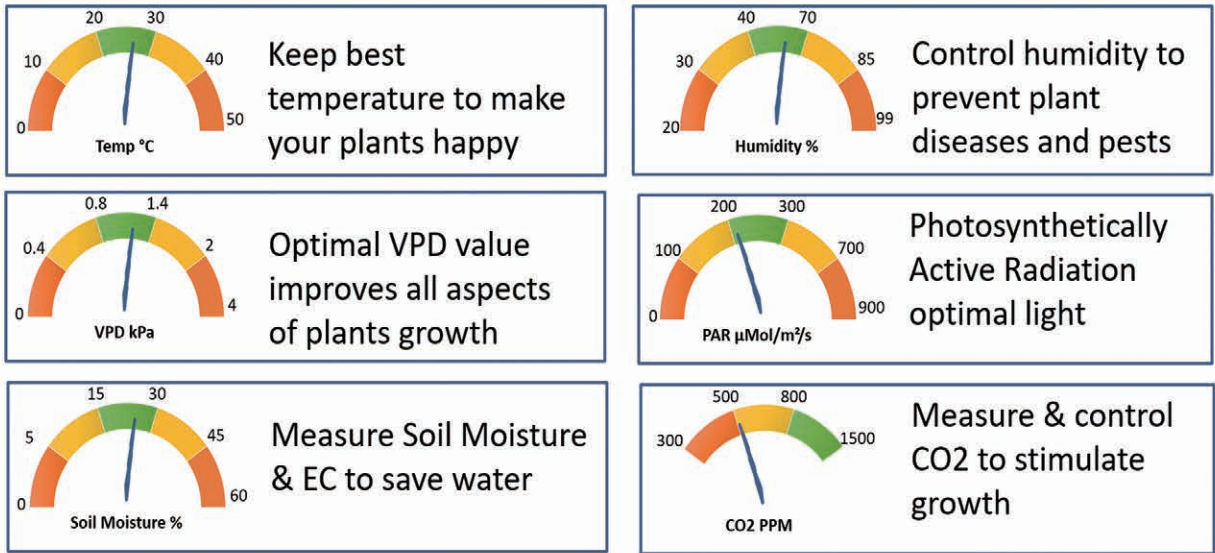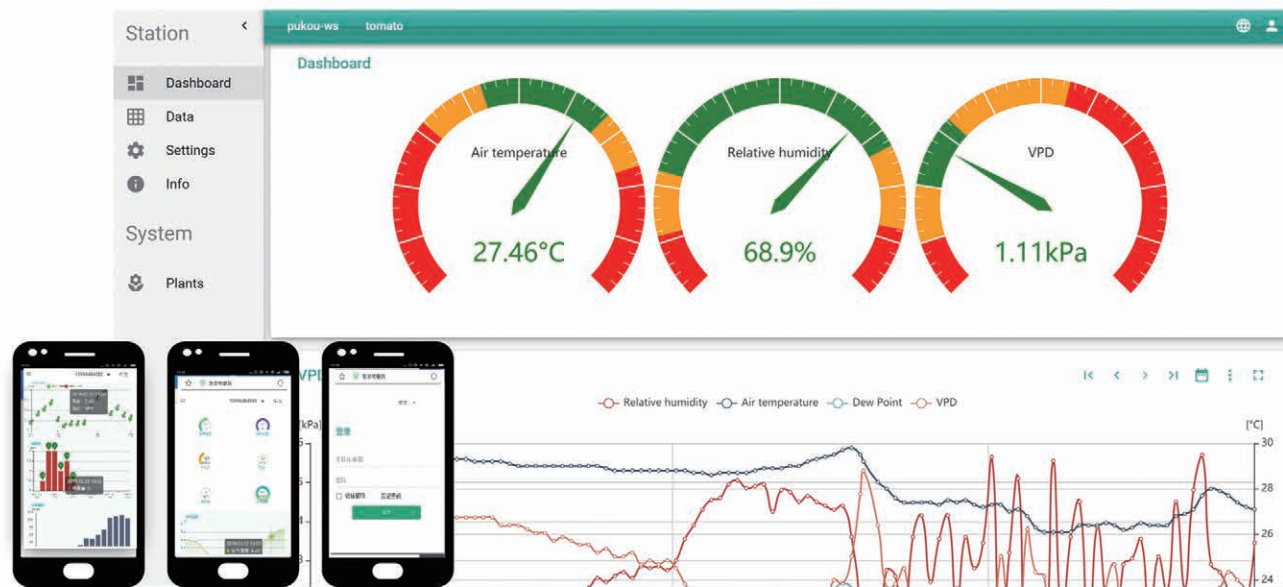
▮ Main solution

Plants accurate growing

1.Build accurate environmental monitoring system

Fruit grows
Trunk size
Leaf temperature
Stem diameter

Collect weather, soil and plant data, which affects plants growing through installing AgrioSens monitoring devices.

2、Create plant growing models for accurate growing proposal

Keep best temperature to make your plants happy

Control humidity to prevent plant diseases and pests

Optimal VPD value improves all aspects of plants growth

Photosynthetically Active Radiation optimal light

Measure Soil Moisture & EC to save water

Measure & control CO_2 to stimulate growth

Our agriculture experts start analyzing your data in 2-3 months after installation. As a result, we will provide basic growing model for different plants and guide farmer to improve growing conditions.

After 1-3 agriculture reasons we will further improve the models to achieve higher yields and quality.

Irrigation automation

1、 Install water & fertigation system

We offer different types of pump station AgrioMac (including pump，filter，fertiliser，tank etc.,) that works together with wireless irrigation control AgrioValve.

2、Remote irrigation control via Internet: AgriCommander

Central web platform AgriCommander controls irrigation based on time plan, water volume or sensors data. It also shows status of all devices and sends alarm if there is any mulfunction.

HappyIn Greenhouse

Making sense of sensors data in greenhouse

AgrioCom provides LoRa based energy independent data monitoring system for greenhouse. It includes all necessary sensors. Data is transferred every 10 minutes to AgriCommander cloud platform. For data analyzing and visualization AgrioCom uses plant profiles. Plant profile can be thought of as a growing pattern. It has definitions for range of sensors data and for calculated models. Profiles can be adjusted for different growing stage and for different time of the day. For example, daytime VPD, night time VPD, daily PAR integral, mean temperature, degree days, etc. If any value goes out of range, customer will get an alarm and advice, how to solve the problem. Keeping all parameters in green range will assure normal growth and even inexperienced staff can achieve good results.