

Intelligent IOT

for Modern Agriculture

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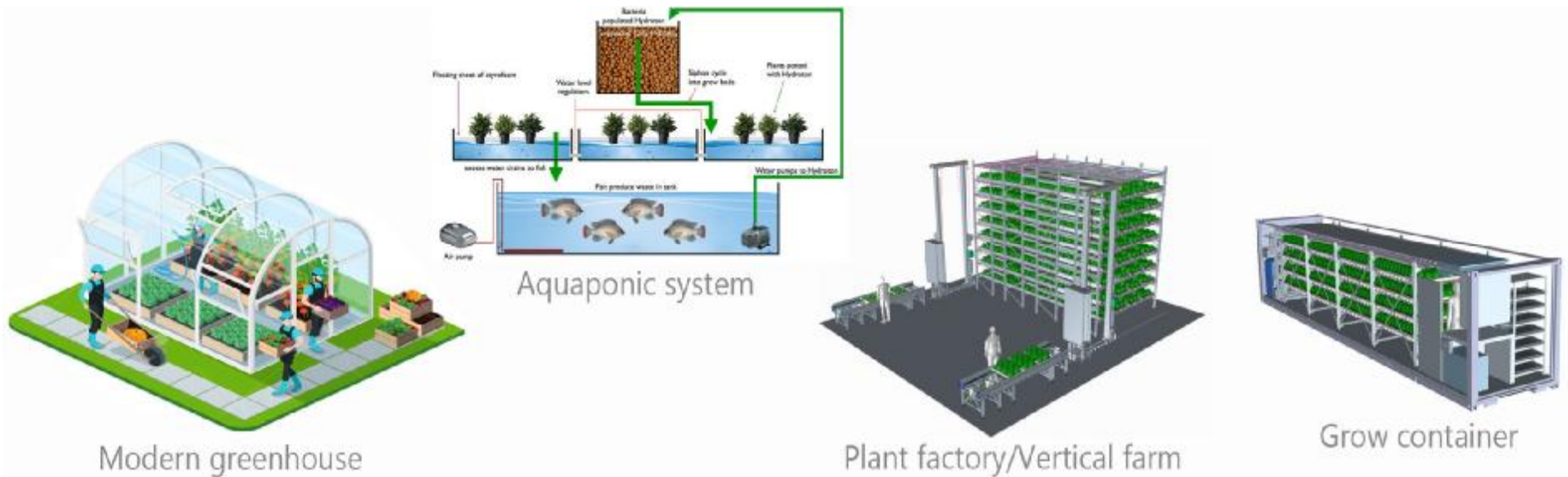
General introduction



In recent years, it saw a rapid development of modern agriculture with various kinds of combination of technologies which bring agriculture industries into brand new high level, featured as high cost efficiency, precise cultivation, high resource utilization rate, etc.

The new agriculture IOT system, presented by Horti-MASTER, puts such cutting-edge technologies as environment monitoring, data analysis, cloud computing, intelligent control, risk appraisal, etc as an integrated unity, which largely improve the agricultural production efficiency and output; Our intelligent IOT system also has very good compatibility with any other control units (sensors, executors, etc) .

Horti-MASTER intelligent agriculture IOT is so far the most reliable, efficient, user-friendly control platform, it is the best choice for your grow facility.



System of Intelligent Hardwares



Horti-MASTER IOT system consists of three parts: communicator, sensors and executors, the whole system is running by MeshSign protocol, featuring as fast reaction, solid reliability and user-friendly.

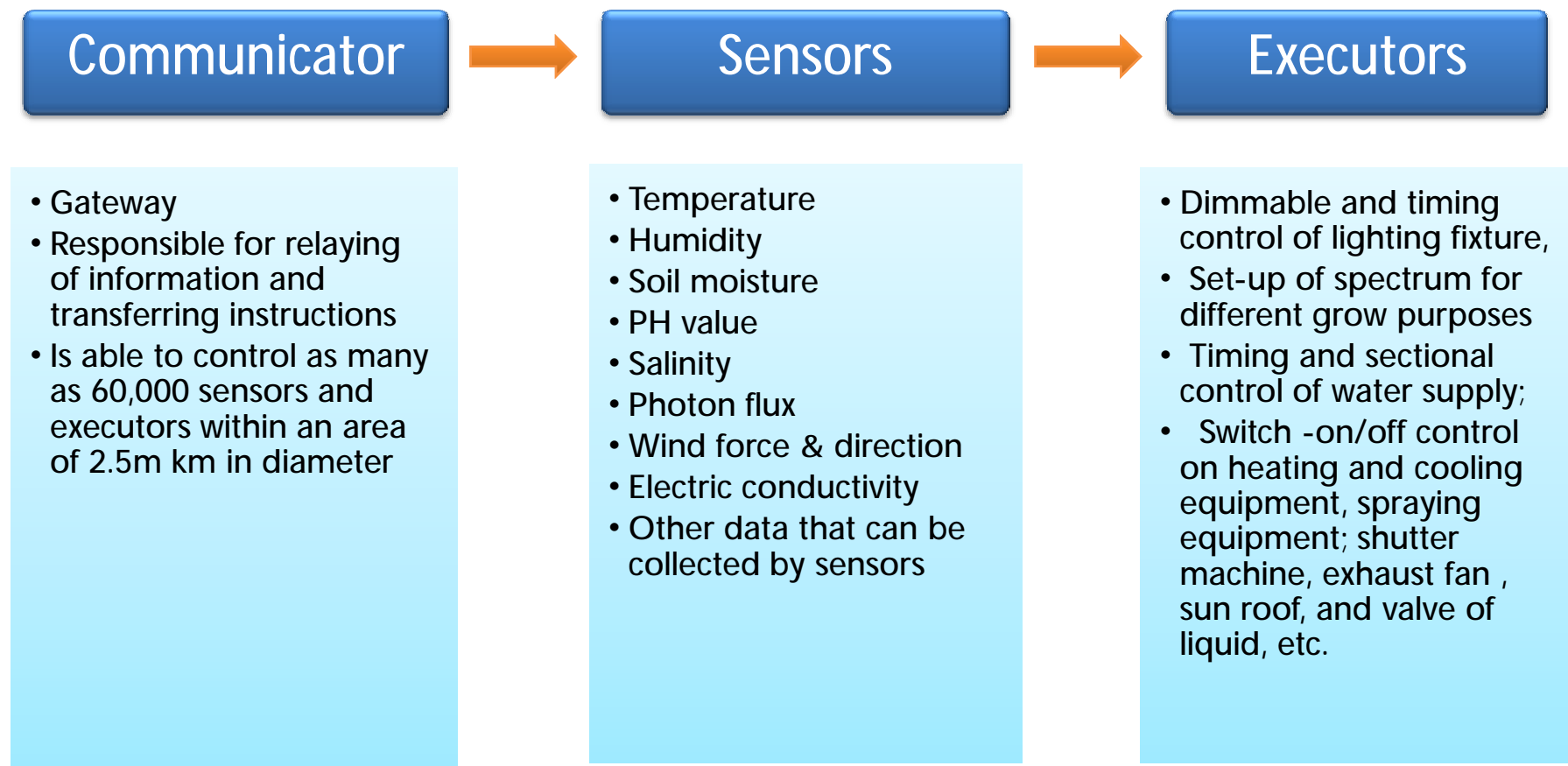
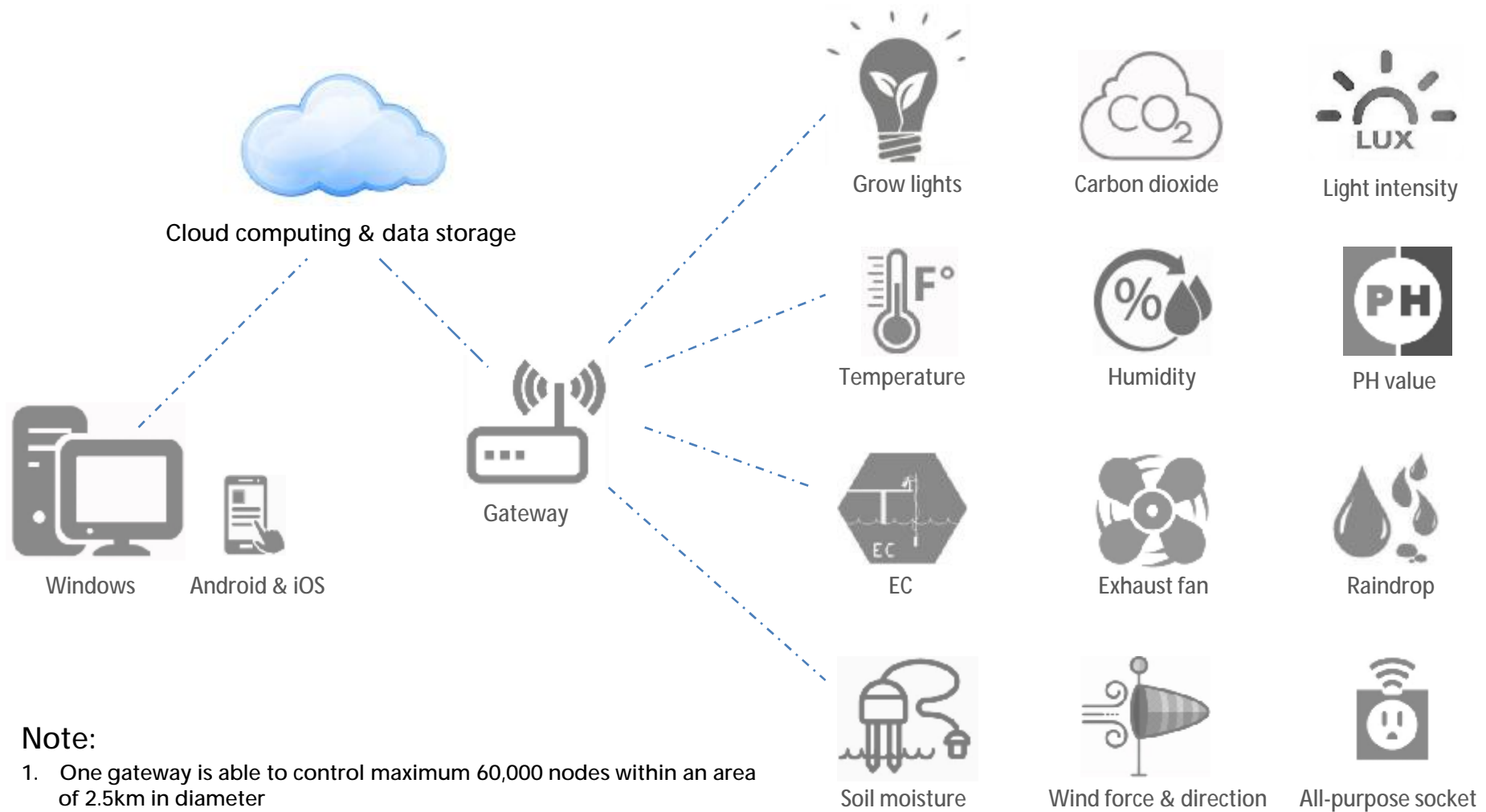


Chart of Agriculture IOT



Note:

1. One gateway is able to control maximum 60,000 nodes within an area of 2.5km in diameter
2. There is no limit in distance between control center and gateway
3. Each node (lights, sensors, all-purpose sockets, etc) is equipped with MeshSig control chip to support communication between nodes and gateway

Equipments & Devices for Agri-IOT



We provide high standard communication tools, sensors and executors for growers, helping them to get most of their grow facilities, achieving high cost efficiency, perfect output and getting fast ROI



Gateway



The Gateway adopts the latest cutting edge communication technology - MeshSig, it is able to control maximum 60, 000 nodes at same time, these nodes can be LED fixtures, sensors and executors, and other equipments which are inbuilt with control units to receive signal from Gateway. Compared to WiFi, Zigbee, Bluetooth, NB-IOT, Lora, etc, MeshSig is much more cost efficient and much easier to put into application, it also has a much stronger compatibility over other communication protocols.

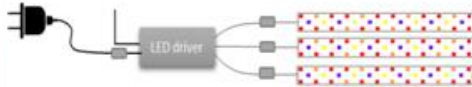
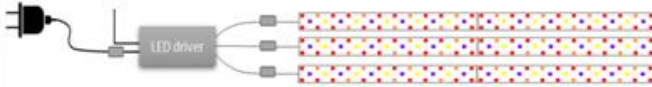




The Gateway is able to create a local area network with its controlled nodes, the signal transmission between gateway and nodes is fast, stable and high efficient, in addition, there is no traffic fee from all nodes;



Users can use App to edit and send orders to nodes via gateway, the system supports remote cluster group control, the user is able to make any group control of nodes for his/her own specific application.

One gateway is able to control nodes within an area of 2.5km in diameter, and there is no limit in distance between control center and gateway, the user can run the system anywhere and anytime, but we need to get gateway connected with internet before we start with all other procedures.

LED Grow Lights — dimmable LED bar light series

Model #	Description	Product drawing	Actual wattage
SSBL-3-60	60cm Single-sided dimmable LED bar light kits		60W±3%
SSBL-3-120	1.2m Single-sided dimmable LED bar light kits		120W±3%
SSBL-3-180	1.8m Single-sided dimmable LED bar light kits		180W±3%
SSBL-3-240	2.4m Single-sided dimmable LED bar light kits		240W±3%
DBL-D120	1.2m Double-sided Dimmable LED bar light		80W±3%
DBL-D240	2.4m Double-sided Dimmable LED bar light		160W±3%

Note:

1. SSBL-3 series are single-sided LED bar lights are applicable to hydroponic grow facilities, vertical farm, grow containers;
2. DBL-D series are double-sided LED grow light for tall-wired crops(tomato, cucumber, etc) in greenhouse;
3. All the lights are in two channels(blue color series and red color series) and should work with software and Gateway for cluster dimmable control;
4. We support OEM&ODM for new fixtures with our control system
5. Warranty: 5 years

Sensor — Light intensity



Input voltage	5-24V DC
Power supply	Power adaptor
Communication distance	2.5km in diameter / 10km
Communication technique	MeshSig
Wireless working frequency	Sub-1G
Working temperature	-40℃ ~ +125℃
Antenna interface	IPX
Measurement range	0 - 200000lux
Minimum starting wind force	±0.45lux
IP rating	IP65
Total loading ability	65535 (MeshSig)
Material	ABS
Dimension	90×85×40(cm)

Sensor – Temperature & Humidity



Input voltage	5V DC
Power supply	Power adaptor
Communication distance	2.5km in diameter / 10km
Communication technique	MeshSig
Wireless working frequency	Sub-1G
Working temperature	-10°C ~ +65°C
Antenna interface	IPX
Type of measurement	Temperature & Humidity
Measurement range	Temperature: -40°C ~ +123°C Humidity: 0 – 100% (RH)
Measurement precision	Temperature: ±0.5°C Humidity: ±4.5% (RH)
Measurement precision	Degree (°C)
Dimension	88×84×42 (cm)

Sensor — PH Value



Input voltage	5-24V DC
Power supply	Power adaptor
Communication distance	2.5km in diameter / 10km
Communication technique	MeshSig
Wireless working frequency	Sub-1G
Working temperature	-10°C ~ +65°C
Antenna interface	IPX
Type of measurement	PH value of liquid
Measurement range	PH 1 ~ 14
Working temperature and humidity	Ambient temperature: -10°C ~ +50°C Ambient humidity: 95% RH
Measurement range of temperature	0°C ~ +80°C
Measurement precision	1
Dimension	42×32×20(cm)

Sensor — Carbon dioxide



Model #	HM-CD-A
Input voltage	5-24V DC
Power supply	Power adaptor
Communication distance	2.5km in diameter / 10km
Communication technique	MeshSig
Wireless working frequency	Sub-1G
Working temperature	-10°C ~ +65°C
Antenna interface	IPX
Type of gas measured	Formaldehyde, sulfur dioxide, carbon dioxide, PM2.5
Measurement range of sulfur dioxide	1-500ppm
Measurement accuracy of PM2.5	0.1mg/m ³
Measured data of PM2.5	6 levels
Measured data (Max.)	14mg/m ³
Measured accuracy of formaldehyde	0.1ppm
Measurement range of CO ₂	0-10000ppm
IP rating	IP65
Total loading ability	65535
Material	ABS
Dimension	Φ 140× Φ 61

Sensor — Water temperature



Input voltage	5-24V DC
Power supply	Power adaptor
Communication distance	2.5km in diameter / 10km
Communication technique	MeshSig
Wireless working frequency	Sub-1G
Antenna interface	IPX
Measurement range	-55°C ~ +125°C
Measurement accuracy	±0.5°C (when -10°C ~ +85°C)
Resolution	9-12 bits
IP rating	IP65
Total loading ability	65535
Material	ABS
Dimension	90×85×40mm

Sensor — Water level



Model #	HM-WL-A
Input voltage	5-24V DC
Power supply	Power adaptor
Communication distance	2.5km in diameter / 10km
Communication technique	MeshSig
Wireless working frequency	Sub-1G
Antenna interface	IPX
Working current	5mA
DC output (high level)	In VCC
DC output low level)	0V
Reaction time	500mS
Output of current	1-50mA
Working temperature	0-100℃
IP rating	IP65
Range of sensitivity	0-20mm
Working humidity	5% - 100%
Total loading ability	65535
Material	ABS
Dimension	90×85×40mm

Sensor — EC (Electric conductivity)



Input voltage	5-24V DC
Power supply	Power adaptor
Communication distance	2.5km in diameter / 10km
Communication technique	MeshSig
Wireless working frequency	Sub-1G
Antenna interface	IPX
Working environment	-10℃ - +55℃, 10-90% RH
Storage environment	-25℃ - +60℃
Working current	5mA
Resolution	0.01ms/cm
Tolerance	±3%
Repeatability	±1%
Measurement range of EC	0-1.2mg/L, 0-12mg/L, high salinity level 2-40mg/L
Duration of measurement	2s
Reaction time	<5s
IP rating	IP65
Ability of temperature correction	Yes
Range of sensitivity	0-20mm
Working humidity	5% - 100%
Total loading ability	65535
Material	ABS
Dimension	90×85×40mm

Sensor — Raindrop



Model #	ECXPP-RD-MKI	ECXPP-RD-CM
Input voltage	5-24V DC	220V AC; 5-24V DC
Power supply	Power adaptor	Power adaptor or Solar battery
Communication distance	2.5km in diameter / 10km	Support customization
Communication technique	MeshSig	Wifi, Bluetooth, GPRS, NB-IOT
Wireless working frequency	Sub-1G	2.4G, 800MHz
Working temperature	-40℃ ~ +125℃	Support customization
Antenna interface	IPX	Support customization
IP rating	IP65	
Total loading ability	65535 (MeshSig)	
Material	ABS	
Dimension	90×85×40(cm)	

Sensor — Wind force & direction



Model #	ECXPP-WFV-MK1
Input voltage	5-24V DC
Power supply	Power adaptor
Communication distance	2.5km in diameter / 10km
Communication technique	MeshSig
Wireless working frequency	Sub-1G
Working temperature	-40℃ ~ +125℃
Antenna interface	IPX
Maximum measurement range	32m/s
Minimum starting wind force	0.2m/s
IP rating	IP65
Total loading ability	65535
Material	ABS
Dimension	90×85×40(cm)