

FARMSCUBE

Smart Farm & Smart Weather System

FARMSCUBE is the most outstanding Complex Environment Control System that combines precise sensor technology, control technology, and advanced wireless technology.

Smart Farm Sensor

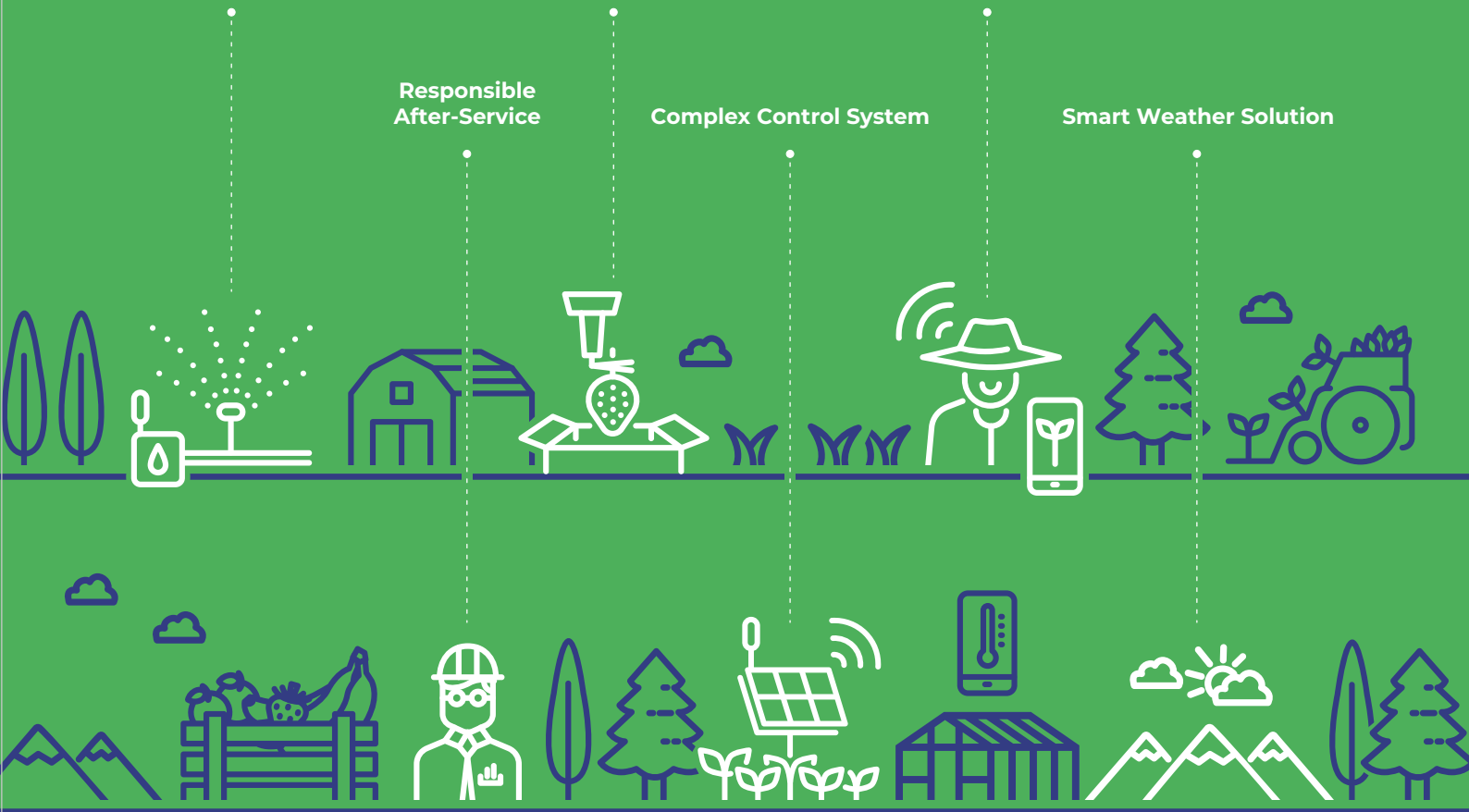
High Quality

Integrated Control with One Controller

Responsible After-Service

Complex Control System

Smart Weather Solution



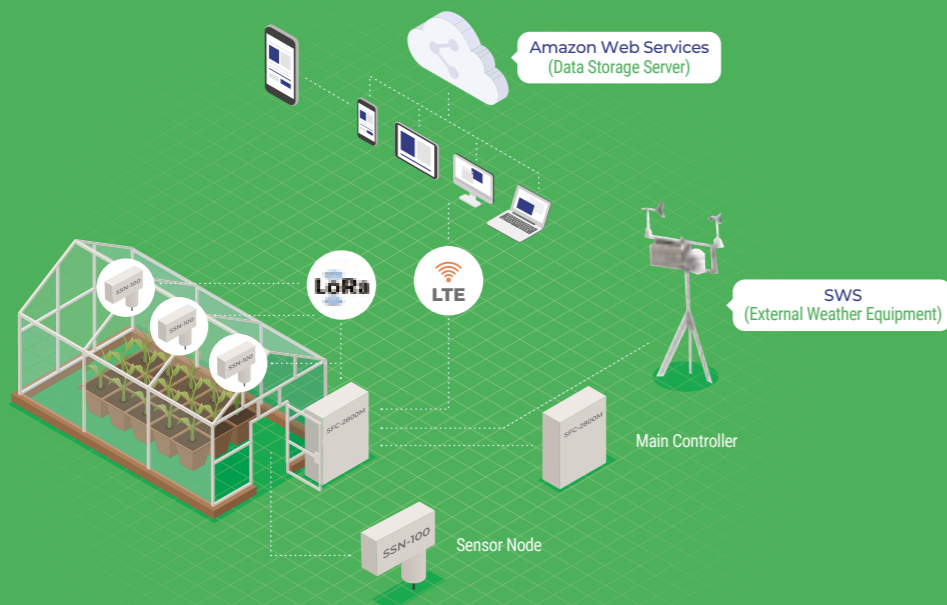
FARMSCUBE

Smart Farm & Smart Weather System

FARMSCUBE?

FARMSCUBE is the most outstanding Complex Environment Control System that combines precise sensor technology, control technology, and advanced wireless technology.

Complex Environmental Control System Configuration Diagram



Installation cases



CO₂ / Pyranometer



Soil moisture



SWS-600
Weather Observation System



Temperature
/ Humidity, CO₂ sensor

FARMSCUBE Feature



Convenience

Easy to install and convenient to move and place.



Economics

We offer all products at an economical price as a manufacturer of all sensors and controllers
* The application used for FARMSCUBE is free.



Mobile

Sensor monitoring, control and setting, data storage and analysis can be used quickly and easily through a smartphone.



Scalability

Able to control various equipment with one controller since it supports 24-channel relay port and 12-channel switchgear dedicated port.

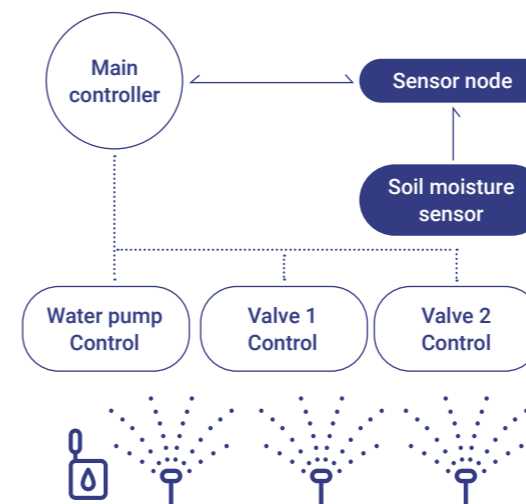


Wireless

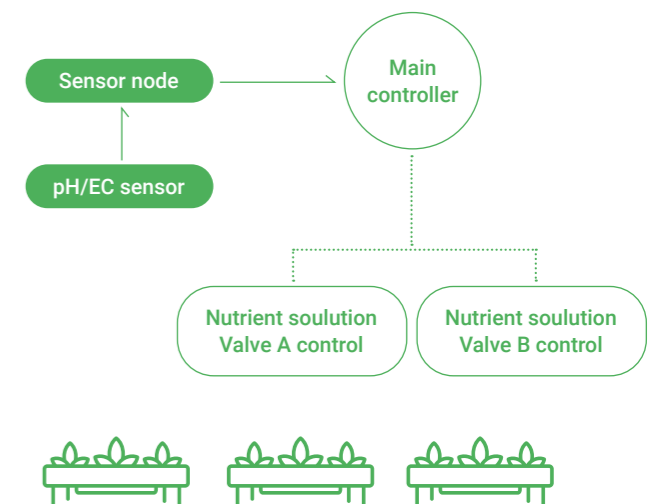
Able to easily connect to the device anytime, anywhere through LoRa wireless communication, LTE modem and Bluetooth.

System configuration examples

Irrigation control system



Nutrient solution control system



FARMSCUBE is the most outstanding **Complex Environment Control System** that combines precise sensor technology, control technology, and advanced wireless technology. It is convenient and easy.

System Configuration

CCTV	Soil Moisture Content	Liquid Pen	Sprinkler
Front Window Switch	Sensor Node	Piper	External Weather Equipment
CO2 Generator	Side Window Switch	Nutrient Solution Supplier	Unmanned Control System



Main Controller SFC-2088MD

- 32 Sensor Nodes Manageable
- 7 Sub-Controllers Manageable
- 24 Relay Channels (AC220/40A)
(Under 60% Rated Current: 24A Recommended)
- Switchgear Channel 12 Channels (DC24/10A)
(Under 60% Rated Current: 6A Recommended)
- Built-in Earth Leakage Breaker 30A
- Built-in Lightning Protector (SPD)



Sub Controller SFC-2800S

- 24 Relay Channels (AC220/40A)
(Under 60% Rated Current: 24A Recommended)
- Switchgear Channel 12 Channels (DC24/10A)
(Under 60% Rated Current: 6A Recommended)
- SMPS: 2KW built-in
- Built-in Earth Leakage Breaker 30A
- Built-in Lightning Protector (SPD)



FARMSCUBE Function

Smart Farm Automation and Remote Control



IOT Remote Control System Linked Perfectly with the Smart Farm System



- Irrigation Control
- Air Conditioner/Heater
- Fluid Fan
- Warm and Waterproof Control
- Motor Control
- Nutrient Liquid Control

* App available on mobile phones, pads, and Chromebooks

Automatic Setting System that Implements Smart Farm Automation



The labor and time required for farming is reduced by more than half.

* Including Simultaneous Use Restriction and Sequential Control Function



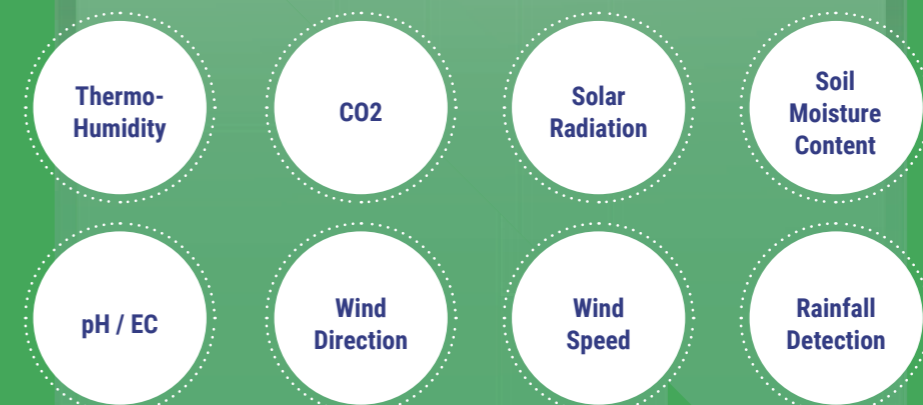
Real-Time Alarm

Urgent alarms for desired information such as temperature, humidity, soil temperature, soil moisture content, soil EC, etc. of all sensors.
Able to respond to emergencies through remote control or automatic setting.



Smart Farm environment analysis

Real-time data is monitored and recorded in order to identify and solve problems in farming such as temperature and humidity, CO2, solar radiation, soil moisture content, pH / EC, wind direction, wind speed, rainfall detection, etc.



Food Jukebox

FarmsCube-21 (FarmOS V2)

A nutrient solution pump can be used to supply nutrient solution to the roots of plants by mist spraying.

Food jukebox was developed by the Korea Institute of Science and Technology (KIST) - Korea Digital Co., Ltd. - Jinong Co., Ltd. developed and disseminated

FEATURE

Plant cultivation

Plant growth/cultivation environment/customized growth system

Same quality

Same growing environment anywhere in the world with the same seed

Individual growth

Individual quality with customized growth conditions with the same seed



The plant grower can measure internal temperature, humidity, and CO₂, measure EC (electrical conductivity) of nutrient solution, and measure external temperature and humidity.



The plant grower uses the Peltier element to provide cooling and heating functions to control the internal temperature. When the indoor CO₂ ppm value is low using the CO₂ sensor, the CO₂ value can be adjusted using the ventilation fan.



Using EC (Electrical Conductivity), the user can check whether the nutrient solution is in the proper ratio.



It uses three types of LEDs, BLUE, RED, and WHITE, to provide the amount of light required for photosynthesis of plants, and the brightness can be adjusted in stages (0-100%) as needed.



A nutrient solution pump can be used to supply nutrient solution to the roots of plants by mist spraying.



TECHNICAL DATA

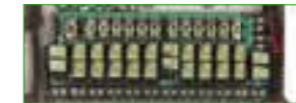
Measurement Item	Measurement Range . Error
Temperature	-40 ~ +80 / ±0.3
Humidity	RH 0 ~ 99%RH / ±0.3%
EC Electrical Conductivity	0~10mS/cm. / ±2% FS
CO ₂	0~3,000ppm / ±(3%FS+2%Reading)



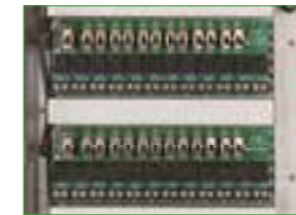
Main Controller SFC-2800MD

TECHNICAL DATA

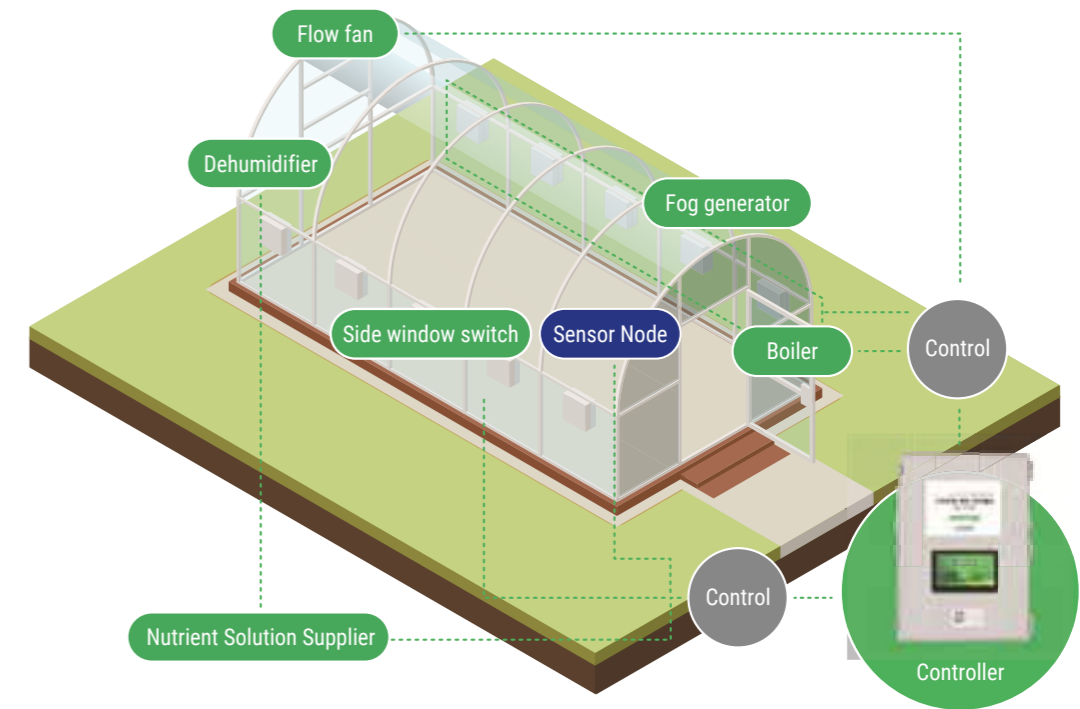
Data	Specifications
General Function	Manage 32 Sensor Nodes (Max) Manage 8 Output Nodes (Max) Update Firmware Remotely
Power	1. Surge Protective Device 2. DC 12V (AC 220V Adapter included)
Communications	External LTE Modem (LTE, Built-in Antenna) Wired LAN(100Mbps) Bluetooth(Within 10m) RS-485
	Node
Operating Condition	Temperature: -10 ~ 60°C Humidity: Max 95% RH
Output Node	Relay Node 24 Channels (AC 220, 10A)
	Switch Node 12 Channels (DC 24C, 10A) SMPS DC 24V / Built-in 2KW



Output Node(Switch 12 Channels)



Output Node(Relay 24 Channels)





Sensor Node

TECHNICAL DATA

Data	Specifications	
Measurement range	Measurement range	Temperature -40 ~ 60°C
		RH 0 ~ 99%RH
Measurement Resolution	Resolution	Temperature 0.1°C RH 0.1%RH
	Accuracy	Temperature ± 0.3°C RH ± 3.0% (10 to 90%)
Electrical	Power supply	3.3VDC
	Power consumption	4mA @3.3V
	Communication	SM-BUS, RS-485
Dimensions	Out Dimension	150mm x 160(Dia. X H)
	Weight	100g
	Connection	M12 - 4P

Features

- Built-in temperature and humidity sensor
- Easy to install, move, re-install
- Sensor node selectable according to sensor communication method

Sensor node configuration diagram

CO control nodes (Bracket sold separately)

Temperature, humidity, solar radiation, CO, CO included



Shelter type node configuration (Bracket sold separately)

Temperature, humidity, solar radiation, CO included



CO₂ Sensor KCD-HP100-3F

TECHNICAL DATA

Data	Specifications	
Measurement	Measurement range	0~3,000ppm
	Accuracy *	±(3%FS+2% Reading)
	Response time	<65 sec
	Measurement time interval	0.75 sec
General	Warn up time	<2 min
	Storage temperature	-40~70°C
	Weight	<350g
Operating conditions	Operating temperature	5~45°C
	Operating humidity	0~95%RH, Non-condensing
Electrical	Power supply	16~28VDC
	Power consumption	70mA Average
	Outputs	0~5VDC, 0~VDC, 4~20mA
	Communication	RS485

@25°C, equipment conditions at the factory, medium value of detection range

- When using the normal environment, it may be necessary to calibrate at intervals of about one year.
- The above images and specifications are subject to change without prior notice for performance and quality improvement



Thermo-Humidity Sensor KSH-7310

TECHNICAL DATA

Data	Specifications	
Measurement	Measurement range	Temperature -40 ~ 60°C RH 0 ~ 99%RH
	Resolution	Temperature 0.1°C RH 0.1%RH
	Accuracy	Temperature ± 0.3°C RH ± 3.0% (10 to 90%)
Electrical	Power supply	3.3VDC
	Power consumption	4mA @3.3V
	Communication	SM-BUS, RS-485
Dimensions	Out Dimension	150mm x 160(Dia. X H)
	Weight	100g
	Connection	M12 - 4P

Product Appearance

- Easy installation
- Digital communication method Waterproof structure of IP65 (humidity), IP67 (temperature)
- Used for measuring temperature and humidity for agricultural and meteorological applications



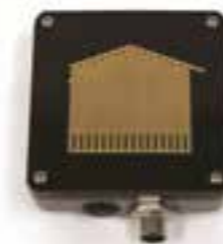
Pyranometer SWSR-7500

TECHNICAL DATA

Data	Specifications	
Measurement	Irradiance Range	0~2,000 W/m2
	Spectral Range	400~1,000 nm (Silicon Photodiode)
	Resolution	1 W/m2
	Accuracy	± 5%
General Conditions	Temperature Coefficient	0.12%/°C
	Warm up time	< 5 s
	Storage temperature	-40 ~ 80°C
Electrical	Operating Environment	-40 ~ 60°C, Max 95%RH
	Power supply	3.3VDC
	Power consumption	10mA@3.3V
Dimensions	Communication	SM-BUS
	Out Dimension	45mm x 60mm(Dia. x H), Sensor 90mm x 7.5mm(Dia. x H), Plate
	Weight	88g (Sensor) 110g (Plate)
	Connection	M12-8p

Product Appearance

- Easy installation
- Digital communication method
- Waterproofing structure equivalent to IP 67
- Used for solar energy system for agriculture and weather



Rainfall Detection Sensor SWRS-7481

TECHNICAL DATA

Data	사양	
Measurement	Measurement range	Rain On/Off
	Power supply	3.3VDC
Electrical	Power consumption	15mA@3.3V
	Communication	SM-BUS
Dimensions	Out Dimension	80mmx140(Dia. X H)
	Weight	100g
	Weight	M12 - 8p



pH / EC Sensor KCD-PE300

TECHNICAL DATA

48mm	Specifications	
Measurement	Measurement range	PH 0.0 ~ 14.0 EC 0 ~ 10mS/cm
	Accuracy(@25°C)	PH ±0.05 (@ pH3 ~ pH8) EC ±2% F.S. (@ 0~4mS/cm)
	Temp. compensation	EC Automatic From 5~40°C, (β=2%/°C)
	Measurement time interval	Min 2sec
General Conditions	Warm up time	< 2 min
	Storage temperature	-20 ~ 80°C
	Operating Environment	0~50°C, Max 95%RH
User Interface	Display	< 2 min
	Button Switch	4 Button Switch
Electrical	Power supply	24VDC ±5V
	Power consumption	<1.5W
	Analog Output	4~20mA
	Communication	RS-485 (Baud rate 38,400bps)
Calibration	Relay Output	2-relay, SPST AC250V, 3A Max
	Maunal	pH Offset (pH7), Span (pH4 or pH10) EC offset, Span
Dimensions	Out Dimension	180mm x 130mm x H36mm
	Weight	300g (without electrode)
	Mounting Pitch	Φ 4.0 x 4spot 162x112

Easy installation and calibration

- CPU-installed, Reliable data processing using MICRO PROCESS with multi-function, high-performance

Display various measurement and parameter value

- Current pH, EC, Temperature Control setting pH, EC
- pH, EC contact operation time and minimum interval setting

Various output signals

- Analog 4 ~ 20mA, RS-485, Relay contact

Automatic temperature compensation function

- Correction factor β = 2% / °C

Remarks

- The electrode is a consumable.
- Maintenance such as periodic cleaning and calibration is necessary.
- Please refer to separate data for protocol for RS-485 communication.
- This instrument is set up for pH electrode and electric conductivity electrode sold separately.
- If other electrode is used, the output value may be different.

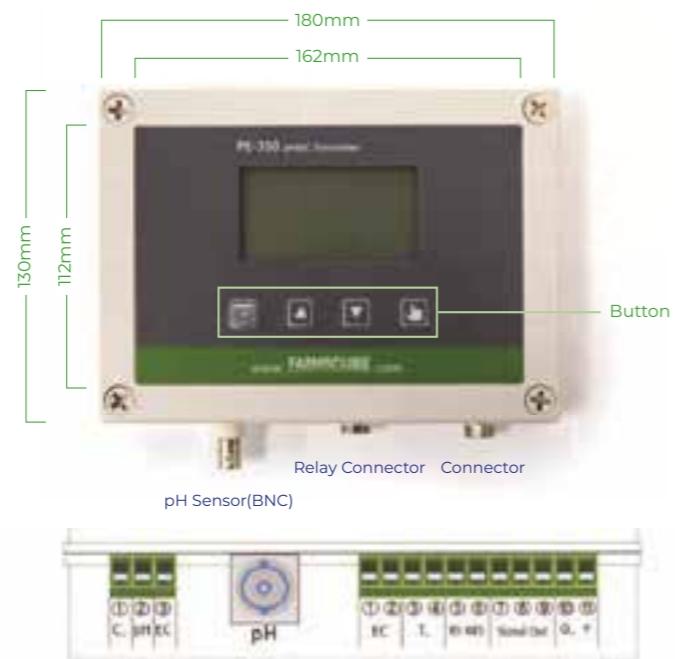
Accessories (sold separately)

- PE-800PH : pH electrode
- PE-900EC : EC electrode (cell constant K = 1)
- PE8004M : pH 4.0 solution for calibration 20ml
- PE8007M : pH 7.0 solution for calibration 20ml
- PE8005M : 5mS / cm solution for calibration 20ml
- PE8012M : 12.89mS / cm solution for calibration 20ml
- PE800P : Power adapter (AC220V to DC)

Appearance and specifications are

subject to change without prior

notice for performance improvement.



- Button** From left ① MENU ② UP ③ DOWN ④ ENTER
- Relay Connector** From left ① pH ② COM ③ EC
- Connector** From left ① ② EC ③ ④ Temp ⑤ ⑥ RS-485 ⑦ pH out(4~20mA)
⑧ EC Out(4~20mA) ⑨ M(pH/EC Signal GND)
⑩ DC Power(GND) ⑪ DC Power(24V)



Soil Moisture Content Sensor KSM8900

TECHNICAL DATA

Data	Specifications	
Measurement range	VWC	0.0~100.0%VWC
	EC	0~10dS/m
Accuracy (@25°C)	VWC	±3@VWC (0~50%VWC)
	EC	±0.1dS/m(@0~1dS/m) ±10%(@1~10dS/m)
Measurement	Temperature	-40 ~ 60°C
	Temperature	±1°C
Temp. compensation	EC Automatic	β=2%/°C
	VWC	0.1%VWC
Resolution	EC	0.01dS/m
	Temperature	0.1°C
Measurement time interval	Min	1sec
	Warm up time	<10s
General Conditions	Storage temperature	-20~80°C
	Operating Environment	-40~60°C, Max 95%RH
Measurement Type	Soil Moisture	Frequency Domain Reflectometry
	EC	Impedance
Electrical	Temperature	MEMS
	Power supply	5VDC
Electrical	Power consumption	70mA@5V
	Communication	RS-485

Easy installation

- Simultaneous measurement of soil moisture, electrical conductivity and soil temperature
- IP67 waterproof structure
- Automatic temperature compensation (correction coefficient β= 2% / °C)

Application

- Fertigation Management
- Greenhouse Management

Appearance and specifications are subject to change without prior notice for performance improvement.

External meteorological equipment

SWS-600

TECHNICAL DATA

Property	Specification
Measurement and broadcast interval	1 min
Power	Temperature, humidity, wind direction, wind speed, solar radiation, rain gauge, rainfall detection
Power	DC 12V
Communication	LoRa (free of charge, radius 2km)
Operating environment	Temperature: -40°C~ 60 °C Humidity: 0 to 100% RH (* non-condensing conditions)
Power Consumption	Less than 1W (without heater)

Common Agricultural Meteorological Observation Equipment

- External Weather Observation for Complex Environment Control
- Installed at Agricultural Technology Center, Farmers Purchase Receivers
- Receive Precise Weather Data minute by minute. Precise Environment Control
- Free Communication Cost, Smart Farm System Cost Reduction





Weather Vain

TECHNICAL DATA

Data	Specifications	
Measurement	Measurement range	0 ~ 360°
	Resolution	1°
	Uncertainty	±5°
	Starting Wind Speed	0.5m/s
General Conditions	Warm up time	< 5초
	Storage temperature	-40 ~ 60°C
	Operating Environment	0 ~ 99%RH (비 결로조각)
Electrical	Power supply	3.3VDC
	Power consumption	15mA @3.3V (Without Heater)
	Operating Environment	SM-BUS
Dimensions	Out Dimension	70mm x 240(Dia. X H), Body 240mm, Vane Length
	Weight	400g
	Connection	M12 - 8p



Wind Speed sensor

TECHNICAL DATA

Data	Specifications
Wind Speed Range	0 ~ 75 m/s
Accuracy	± 5%(@10~70m/s)
Resolution	0.1m/s
Starting Threshold	<0.5m/s
Sensor	Optical disk(8 CPR)

Leading the World's First "Smart Farm Cost Innovation with SWS Broadcasting"

01 Necessity

- Data Monitoring from External (Atmospheric) Weather Observation Equipment
- Cost Reduction of Smart Farm Complex Environment Control System by Common Use of Meteorological Observation Equipment
- Energy Cost Reduction through Observation Accuracy and Optimal Environmental Control at the Level of the Meteorological Agency AWS

02 SWS Features

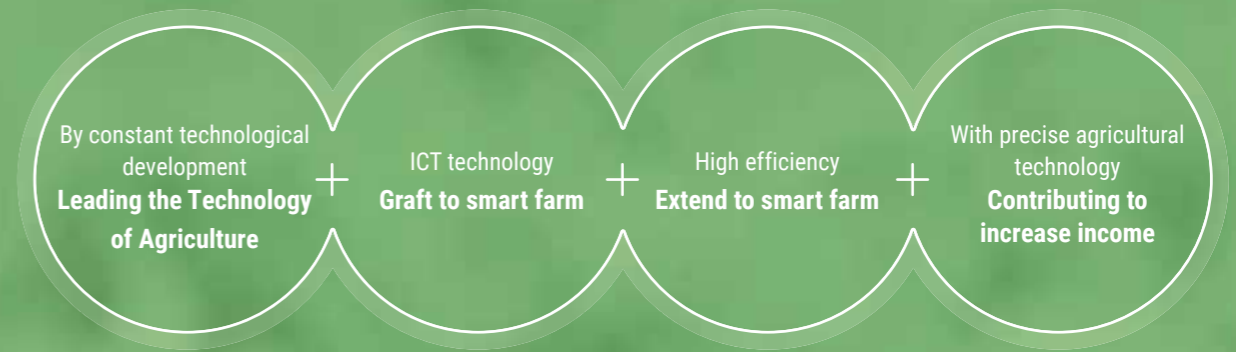
- **High accuracy** SWS sensor is a certified product of the Meteorological Administration and is highly accurate and reliable.
- **Fully digital** sensor ID assignment, sensor automatic recognition, calibration/correction
- **Data transmission per minute** Observation data is broadcast in a radius of 2km via LoRa wireless communication
- **Inexpensive SWS data receiver** Receives precise SWS data every minute
- **Automatic control** Automatic control in conjunction with Korea Digital smart farm-complex control system
- **No power Supply required** Ultra-low power design using solar cell and rechargeable battery
- **Free monitoring app** Download to a smartphone (receiver required)
- **Excellent economical efficiency** Multi-use within 2km radius of SWS installation site, free communication cost



Creating Value for the Future,
Dreaming for Tomorrow.
Korea Digital Co., Ltd.

will serve farmers to become an expert in smart farm field. Korea Digital will lead the smart farm field from [experience to precision agriculture]with honest and transparent corporate management and superior technology.

Korea Digital supports "high-tech agriculture" with precision sensing technology



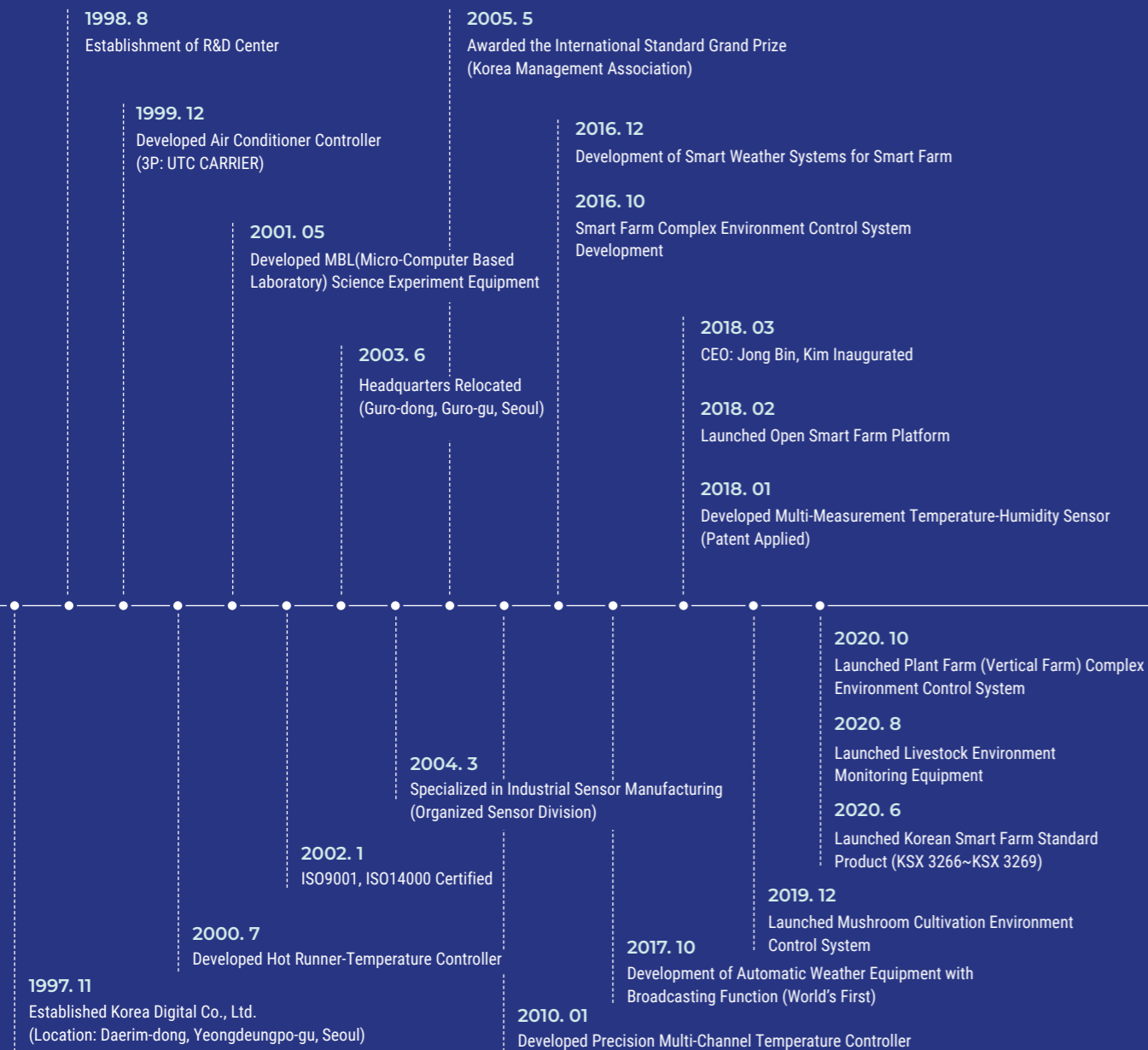
FARMSCUBE
Smart Farm & Smart Weather System

FARMSCUBE is a trade mark for the smart farm business of Korea Digital which was founded in 1997. With 20 years of expertise and manufacturing experience with smart sensors, FARMSCUBE provides a complex environmental control system in smart farm field optimized for customer needs.

VISION

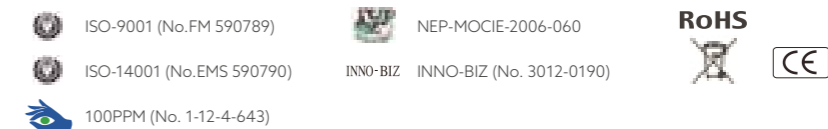
Creating Value for the Future, Dreaming for Tomorrow. Korea Digital Co., Ltd.
 We serve farmers to become experts in the smart farm field.
 Korea Digital leads the smart farm field with precision agriculture technology with honest and transparent management and excellent technology.
 We support "High-tech Digital Farm" with precision sensing technology.

HISTORY



2018 India IMC Smart Farm Exhibition with Samsung Electronics

Certificate





Headquarters

Guro-gu, Seoul



Factory

Hwasun Gun,
Cheonnam,
South Korea



Location #804, 273 Digital-ro, Guro-gu, Seoul

Factory Neung-ju farming complex, Hwasun Gun, Cheonnam., South Korea

Employees 43 (R&D: 15)

Products 200 kinds of Sensors for IoT

- Smart farm complex environmental control system, - Industrial sensor

- AWS (Automated Weather Instrument) - Scientific Instruments

FARMSUCUBE

Smart Farm & Smart Weather System

Experience to precision agriculture.

will serve farmers to become an expert in smart farm field.

Korea Digital Co., Ltd.

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