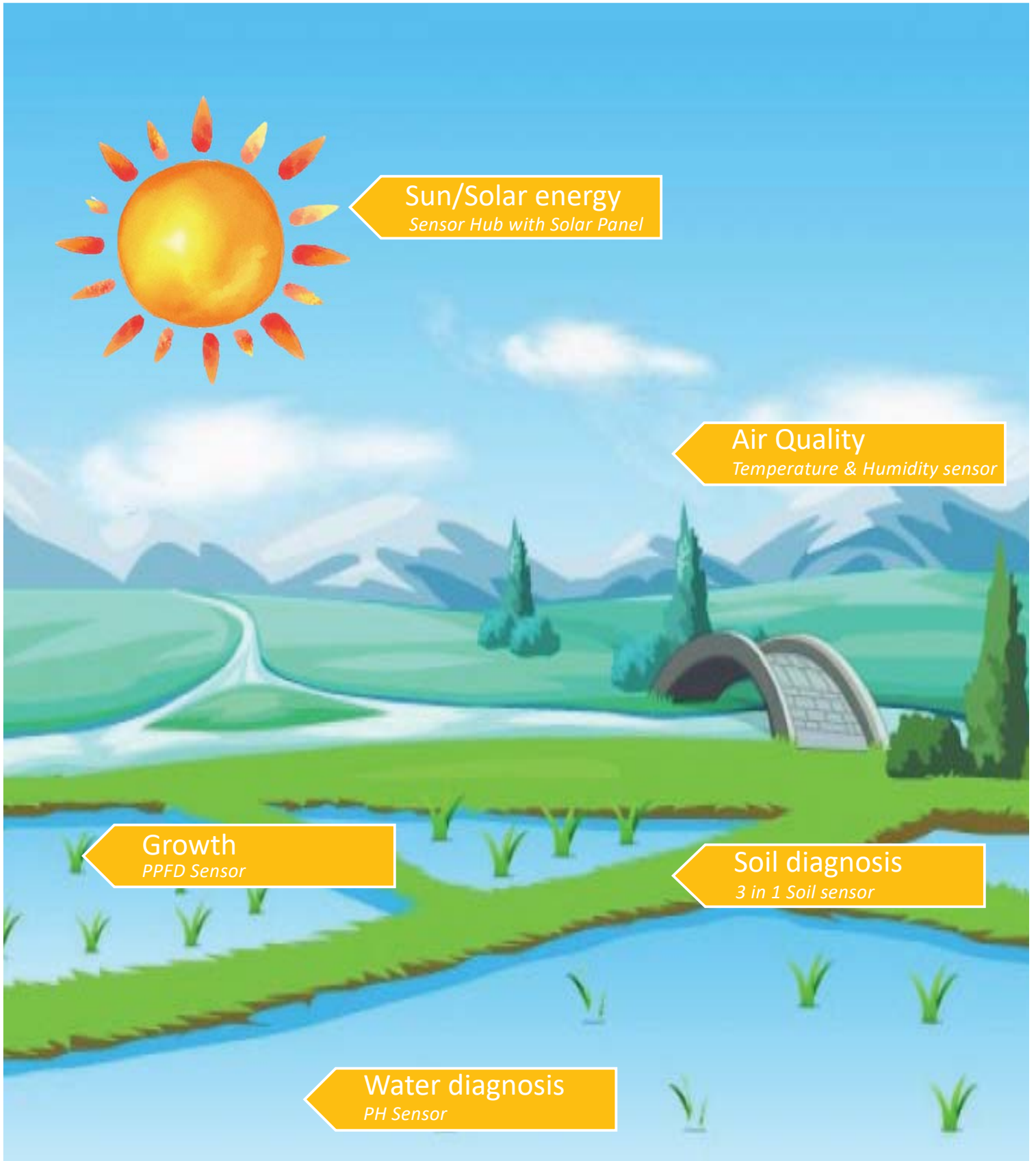


# Smart Agricultural IoT Solution



Sun/Solar energy  
*Sensor Hub with Solar Panel*

Air Quality  
*Temperature & Humidity sensor*

Growth  
*PPFD Sensor*

Soil diagnosis  
*3 in 1 Soil sensor*

Water diagnosis  
*PH Sensor*

# Specification



## Sensor Hub with Solar Panel

<b>Power Supply</b>	Solar power
<b>Protocol</b>	LoRaWAN 1.0.3
<b>Frequency</b>	868MHz & 915MHz
<b>RF TX power</b>	+19dBm (Conducted)
<b>RF Sensitivity</b>	-140dBm (Conducted)
<b>Solar panels efficiency</b>	Sunny day: (Conditions: 1000W/m <sup>2</sup> illuminance & located in Taiwan) Generate 2900 mAh of energy, equivalent to 5 AAA batteries. Cloudy day: (Conditions: 100W/m <sup>2</sup> illuminance & located in Taiwan) Generate 272 mAh of energy.
<b>Input interface</b>	RS-485 x3, ADC x1
<b>Operation Temperature</b>	-20°C to +70°C
<b>Environmental Rating</b>	IP 66
<b>Dimensions</b>	L 187mm x W 147mm x H 75mm



## 3 in 1 Soil sensor

<b>Sensors</b>	soil electrical conductivity	soil moisture content	soil temperature
<b>Measuring range</b>	0uS/cm~100 00μS/cm	0%~100%	-40°C~85°C
<b>Sensitivity</b>	2%	±3% (0~53%) ±5% (>53%)	<±0.3°C (-10°C~70°C) <±0.5°C (other temp. range)
<b>Startup time</b>	Less than 2 seconds		
<b>Voltage</b>	2~5 V		
<b>Average Current</b>	<10mA (maximum: <30mA)		
<b>Operation temp.</b>	-40°C~85°C		
<b>Environmental Rating</b>	IP68		
<b>Cable length</b>	3.5 m		
<b>Output interface</b>	RS-485 (MODBUS-RTU)		
<b>Dimensions</b>	L 66*W 45 mm; probe L 70 mm		

# Specification



## Photosynthetic Photon Flux Density(PPFD) Sensor

<b>Measuring range</b>	0~2500 $\mu$ mol/m <sup>2</sup> •s
<b>Effective spectrum</b>	400~700nm
<b>Voltage</b>	5 V
<b>Average Current</b>	<30mA
<b>Operation Temperature</b>	-30°C~75°C
<b>Environmental Rating</b>	IP 67
<b>Cable length</b>	2m
<b>Output interface</b>	ADC (0~2.5V)
<b>Dimensions</b>	diameter 76mm, L 31 mm



## Temperature & Humidity Sensor

Sensors	Temperature	Humidity
<b>Measuring range</b>	-40°C~80°C	0%~100%
<b>Sensitivity</b>	±0.5°C	±5%
<b>Voltage</b>	5~12 V	
<b>Average Current</b>	1mA	
<b>Operation temp.</b>	-40°C~85°C	
<b>Environmental Rating</b>	IP44	
<b>Output interface</b>	RS-485 (MODBUS-RTU)	
<b>Dimensions</b>	diameter 16mm, L 70 mm	



## pH Sensor

<b>Measuring range</b>	pH 0~14
<b>Sensitivity</b>	±0.02 (pH 4~9)
<b>Voltage</b>	5~24V
<b>Power consumption</b>	≤0.1W
<b>Operation temp.</b>	0°C~60°C
<b>Environmental Rating</b>	IP67
<b>Cable length</b>	2.3m
<b>Output interface</b>	ADC (0~2V)
<b>Dimensions</b>	L 176mm

