

## DESCRIPTION

WT-AGRO-xS is an interface Wireless Transmitter designed for Agriculture application that is easy to install with minimal system setup. It is PLUG & PLAY where the user can simply plug in the sensors included in the package and everything is good to go. Other sensors and devices are available to interface per request; customization is provided.

WR-AGRO-3S is with 3 sensors input and WR-AGRO-2S is with 2 sensors input.

## FEATURES

- Add or change sensors in seconds
- Robust waterproof IP67 enclosure
- Solar / Battery / Other External Power Source
- Radios: SigFox / LoRa / WiFi Mesh
- Industrial Protocols: RS-485 Modbus (other protocol available upon request)

**WR-AGRO-3S**



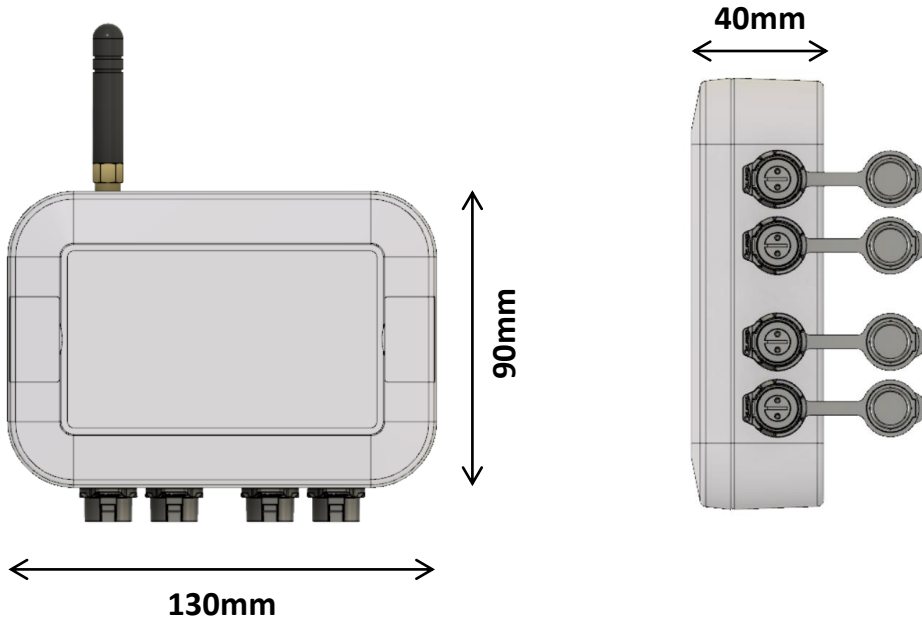
**WR-AGRO-2S**



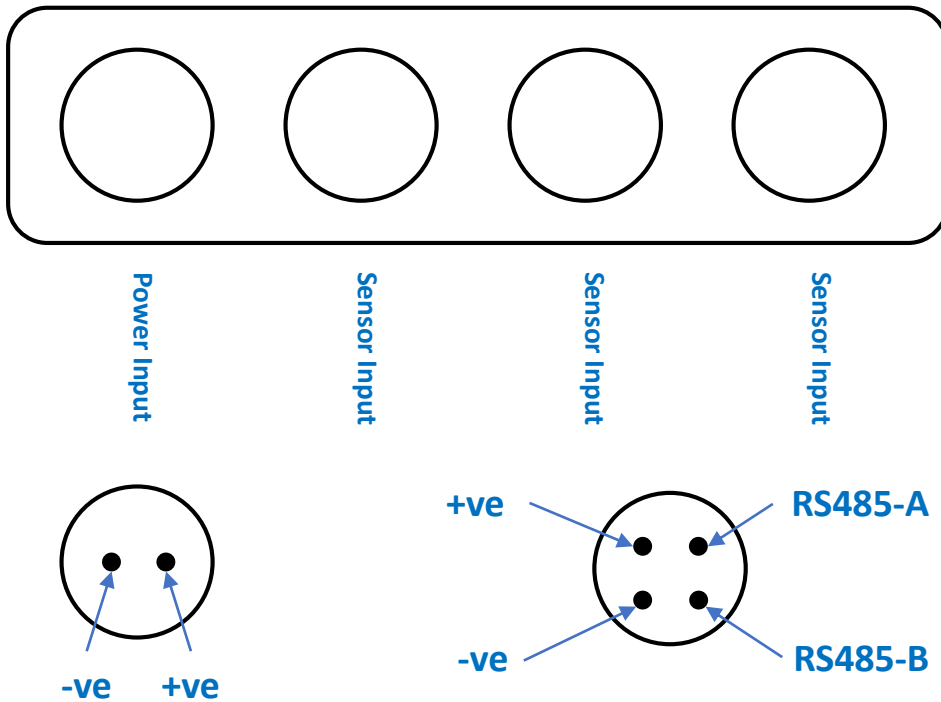
## SPECIFICATION

No.	Description	Min.	Typ.	Max.	Unit
1	Input Voltage		12	14	VDC
2	Power Consumption (Transmit SigFox messages every 10 mins with no sensors attached)	3		15	mW
3	Network Interface	SigFox			
4	SigFox Supported Frequency	RCZ 2 / 4			
5	Sensor Communication Interface	RS485 ModBus-RTU (Analog Input / 4-20mA / Others Available Upon Request)			
6	Power Input	Battery / Solar Power			
7	Output Voltage to Sensors		12	14	VDC
8	IP Rating	IP67			
9	Antenna	External			
10	Dimension	130 (L) x 90 (W) x 40 (H)			mm

## DIMENSION



## CONNECTION DIAGRAM



## AVAILABLE SENSORS



Order Number: WR-RD-01  
Sensor Type: Soil pH  
pH Range: 3 – 9  
pH Resolution: 0.1  
Measurement Accuracy:  $\pm 0.3$   
Power Consumption: 150 mW  
Ingress Protection: IP68  
Bus Communication: RS485 Modbus RTU



Order Number: WR-SMT-P-O  
Sensor Type: Soil Moisture & Temperature  
Moisture Range: 0-100%  
Moisture Measurement Accuracy:  $\pm 3\%$   
Temperature Range:  $-30^{\circ}\text{C}$  -  $+70^{\circ}\text{C}$   
Temperature Measurement Accuracy:  $\pm 0.2^{\circ}\text{C}$   
Power Consumption: 200 mW  
Ingress Protection: IP68  
Bus Communication: RS485 Modbus RTU



Order Number: W-SE-P-O  
Sensor Type: Soil Electrical Conductivity  
EC Range: 0 ~ 20 mS/cm  
EC Measurement Accuracy:  $\pm 2\%$   
EC Resolution: 0.001 mS/cm  
Power Consumption: 150 mW  
Ingress Protection: IP68  
Bus Communication: RS485 Modbus RTU

## AVAILABLE SENSORS



Order Number: WR-SS-G-O  
Sensor Type: Soil Salinity  
Salinity Range: 0 ~ 20 mS/cm or 0 ~ 150 mmol/L  
Salinity Measurement Accuracy:  $\pm 2\%$   
Salinity Resolution: 0.001 mS/cm  
Power Consumption: 150 mW  
Ingress Protection: IP68  
Bus Communication: RS485 Modbus RTU



Order Number: WR-SMTES-P-O  
Sensor Type: Soil Temperature+Moisture+Salinity+EC  
Ingress Protection: IP68  
Bus Communication: RS485 Modbus RTU



Order Number: WR-SS-G-O  
Sensor Type: Soil Salinity  
Salinity Range: 0 ~ 20 mS/cm or 0 ~ 150 mmol/L  
Salinity Measurement Accuracy:  $\pm 2\%$   
Salinity Resolution: 0.001 mS/cm  
Power Consumption: 150 mW  
Ingress Protection: IP68  
Bus Communication: RS485 Modbus RTU

## AVAILABLE SENSORS



Order Number: WR-NPK-01

Sensor Type: Soil NPK (Nitrogen-Phosphorous-Potassium)

NPK Range: 0 ~ 1999 mg/kg

NPK Measurement Accuracy:  $\pm 2\%FS$

NPK Resolution: 1 mg/kg (mg/L)

Power Consumption: 150 mW

Ingress Protection: IP68

Bus Communication: RS485 Modbus RTU



Order Number: WR-RD-SOR

Sensor Type: Water pH Sensor

Measurement Range: 0 – 14 pH

Measurement Accuracy:  $\pm 0.02\%FS$

Resolution: 0.01pH

Power Consumption: <0.5W

Ingress Protection: IP68

Bus Communication: RS485 Modbus RTU



Order Number: WR-DO-MO-01

Sensor Type: Water Dissolved Oxygen Sensor

Measurement Range: 0 ~ 20 mg/L

Measurement Accuracy:  $\pm 0.5\%FS$

Resolution: 0.01 mg/L

Power Consumption: <0.5W

Ingress Protection: IP68

Operating Temperature: 0 ~ 60°C

Bus Communication: RS485 Modbus RTU

## AVAILABLE SENSORS



Order Number: WR-AN-OR-01  
 Sensor Type: Water Ammonia Sensor  
 Measurement Range: 0 ~ 10.00 mg/L  
 Measurement Accuracy:  $\pm 0.5\%$ FS  
 Resolution: 0.01 mg/L  
 Ingress Protection: IP68  
 Operating Temperature: 0 ~ 60°C  
 Bus Communication: RS485 Modbus RTU



Order Number: WR-TS-O-01  
 Sensor Type: Water Turbidity Sensor  
 Measurement Range: 0 ~ 4000 NTU  
 Measurement Accuracy:  $\pm 1\%$ FS  
 Measurement Method: Light Scattering Method  
 Light Source Wavelength: 860nm  
 Ingress Protection: IP68  
 Operating Temperature: -10 ~ 60°C  
 Bus Communication: RS485 Modbus RTU



Order Number: WR-RD-SO  
 Sensor Type: Water Salinity Sensor  
 Measurement Range: 20 ~ 20,000  $\mu\text{S}/\text{cm}$   
 Measurement Accuracy:  $\pm 1\%$ FS  
 Ingress Protection: IP68  
 Power Consumption: <0.5W  
 Operating Temperature: 0 ~ 60°C  
 Bus Communication: RS485 Modbus RTU

## AVAILABLE SENSORS



Order Number: WR-UL-xxm  
 Sensor Type: Ultrasonic Level Meter  
 Measurement Range: 5m / 10m / 15m  
 Measurement Accuracy:  $\pm 0.25\%FS$   
 Resolution: 1mm  
 Ingress Protection: IP67  
 Operating Temperature:  $-20 \sim 70^{\circ}C$   
 Operating Voltage: +24VDC  
 Bus Communication: RS485 Modbus RTU



Order Number: WR-RWG-01  
 Sensor Type: Pneumatic Level Meter  
 Measurement Range: 5m  
 Measurement Accuracy:  $\pm 0.2\%FS$   
 Measurement Method: Pressure  
 Ingress Protection: IP68  
 Operating Temperature:  $-30 \sim 80^{\circ}C$   
 Bus Communication: RS485 Modbus RTU



Order Number: WR-RD-30m  
 Sensor Type: Radar Level Meter  
 Measurement Range: 30m  
 Measurement Accuracy:  $\pm 5mm$   
 Ingress Protection: IP67  
 Power Consumption:  $<0.6W$   
 Operating Temperature:  $-40 \sim 80^{\circ}C$   
 Bus Communication: RS485 Modbus RTU



## OPTIONAL ACCESSORIES



Waterproof Lithium-Ion Battery in Silicon Sleeve

Capacity: Max. 12.6V / 6600mAh



Solar Power System

Maximum Power: 30W

Solar Panel Size: 525mm x 345mm x 25mm

Weight: 2.3 kg

Ingress Protection: IP65

Charger Controller: 12V/24V

Maximum Input Voltage: 50V

Standby Current: <10mA

Controller Dimension: 140mm x 91mm x 35mm

## ORDERING INFORMATION

Part Number	Description
WT-AGRO-3S-XX-YY	SigFox Based Data Logger with three RS485 Modbus Input
WT-AGRO-2S-XX-YY	SigFox Based Data Logger with two RS485 Modbus Input

## Sensors Selections (XX)

Part Number	Description
-S1	Soil PH, Soil Temperature, Soil Moisture, Soil Electrical Conductivity, Soil Salinity
-S2	Soil Nitrogen, Soil Phosphorus, Soil Potassium, Soil Temperature, Soil Moisture
-W1	Water PH, Water Temperature, Water Electrical Conductivity, Water Salinity, Water Turbidity
-W2	Water PH, Water Temperature, Water Electrical Conductivity, Water Total Dissolved Solids (TDS), Water Dissolved Oxygen
-W3	Water PH, Water Electrical Conductivity, Water Total Dissolved Solids (TDS), Water Dissolved Oxygen, Water Calcium Content
-CC	Customization. For custom sensors combination, please contact our sales department (sales@wondernica.com).

## Network Selections (YY)

Part Number	Description
-SF	Sigfox
-LR	LoRaWAN
-NB	NB IoT
-WF	WiFi (For Green House)

## CONTACT US

### **Penang R&D Office**

Wondernica Technologies Sdn Bhd  
No. 2 Lebuah Acheh,  
10200 Georgetown, Penang

### **Penang Sales Office**

Wondernica Technologies Sdn Bhd  
Plot 991, 1<sup>st</sup> Floor, MK1,  
Solok Perusahaan 3, Kawasan Perusahaan MIEL Perai,  
13600 Perai, Penang  
MALAYSIA

General Email: [sales@wondernica.com](mailto:sales@wondernica.com)

## DISCLAIMER

This document is a strictly confidential communication to and solely for the use of the recipient and may not be reproduced or circulated without Wondernica Technologies Sdn Bhd prior written consent. If you are not the intended recipient, you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited.

All copyrights and trademarks of images belong to Wondernica Technologies Sdn Bhd and any intention of reproduce or use in incorrect manner will be strictly prohibited. Any intention of removing or label over products logo will be strictly prohibited.