

# SOLUTIONS SAIJAITECH

Innovative IoT for the Future

#### **Answer every need All work on the IoT system**

Innovative technology with high efficiency This allows us to develop the solution's working system efficiently.

To meet the needs of the industrial sector.













5 years of IoT experience, delivering innovative solutions.

# Company Overview

#### **Business Overview and Company Expertise**

The company's core service is centered around designing effective solutions for clients using IoT innovations. Emphasizing both high performance and quality, Saijai Tech is dedicated to crafting tailored solutions that meet clients' specific needs. The company continually strives to improve and enhance its services to ensure that they remain cost-effective and aligned with customer expectations. By consistently refining its capabilities, Saijai Tech aims to deliver genuine customer satisfaction and meet evolving market demands.

#### **Key Technology, Products, or Core Services**

Saijai Tech is a company committed to driving Thailand into the Thailand 4.0 era by creating innovative solutions that support both the public and private sectors. The company specializes in offering customer-centric solutions through IoT innovation, focusing on developing and solving customer challenges with creativity and efficiency. Saijai Tech provides consultancy services with integrity and expertise in various sectors such as agriculture, industry, transportation, and clean energy.

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# Selar

#### Efficient Solar Rooftop System and Platform with IoT Devices.

Selar is a solar rooftop system developed using IoT devices and a software platform to monitor and display the performance of the solar cell system.



### **Key Features**



#### **Efficiency**

Solar panels with advanced convert sunlight into electricity with maximum efficiency, ensuring optimal energy generation.



#### **Customization and flexibility**

Panels and systems can be customized to fit various roof sizes and orientations. accommodating different energy needs and architectural constraints.



#### Easy to use

Has a clear information show on display screen and status lights.



#### Strong and durable

It is an aluminum enclosure with a lid and roof, dustproof, waterproof, and unbreakable.

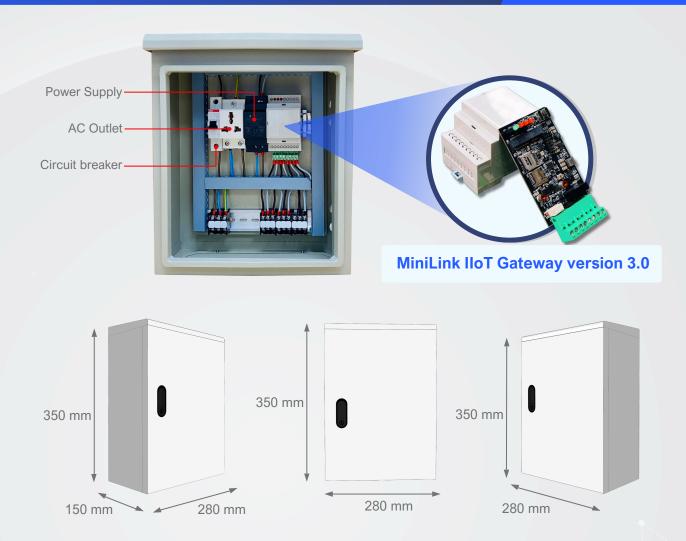


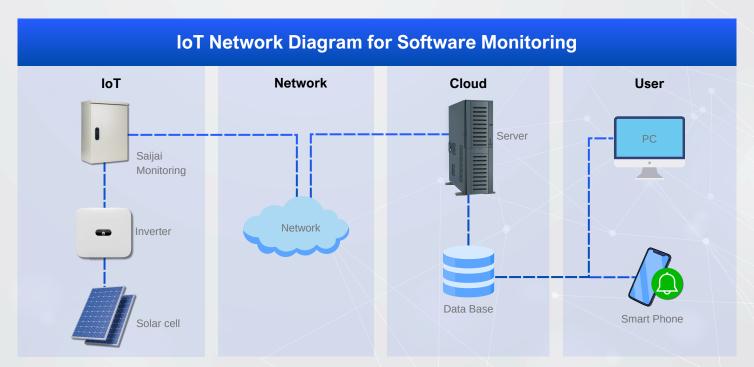
#### Easy installation and compatibility

Designed for straightforward setup with user-friendly mounting systems, reducing installation time and labor costs.











MCU	ARM Cortex-M 32- bit RISC ARM Processor cores
Interface port	RS485 or RS232 isolation with auto-direction (Software mode selection) Rs485 or I2C with auto-direction
WiFi	802.11 b/g/n with a speed of 54 megabits per second when connected via 802.11g
Indicator lamp	Includes 2 status indicator LEDs
Memory	512 kilobytes
USB type C port	Program Upload
Case	Aluminium
Clock speed	240 MHz
Bluetooth	Bluetooth 4.0
User switch	1 button
loT size box	H: 350 x W: 280 x D: 150 mm
Weight	5 kg

### **Supports expansion boards**



#### **LoRaWAN Network Server**

Supports expansion boards for low-power longrange communication modules operating at 920 - 925 MHz (LoRaWAN)



#### **NB-IoT** extension

Supports expansion boards with Narrowband Internet of Things (NB-IoT) communication modules



# SolNia

#### SolNia is an IoT platform for solar monitoring systems.

SolNia developed from Selar, which replaces MiniLink with a mini industrial PC to support backup data functions. SolNia has real-time data monitoring is possible via a dashboard on the software platform and a real-time notification system and approved by the subcommittee for consideration and screening as an economic innovation project necessary for national development no. 6/2024.



### **Key Features**

- Easy to Install and Use SolNia is a Zero Touch and Plug-and-Play product.
- Versatile Application

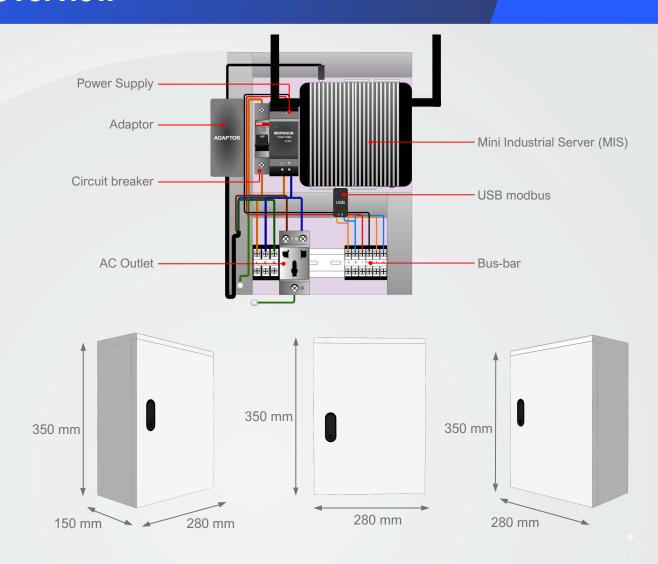
  The device is compatible with various sensors, such as air quality sensors, temperature, and humidity sensors.
- Operation
  Consumes low power and generates low heat, allowing continuous operation when working 24/7.
- Capable of storing data locally without need for cloud storage.
- Linux Operating System
  Runs on Linux Ubuntu 20.04.

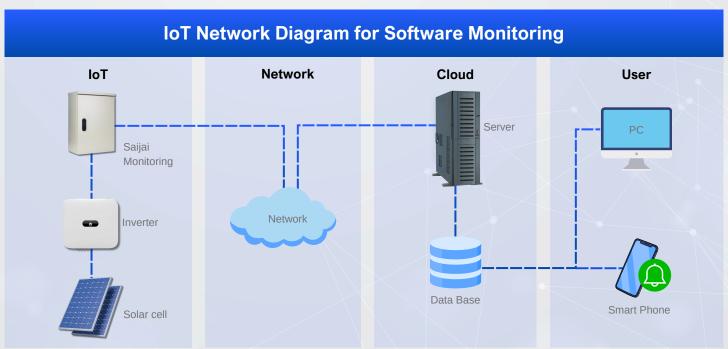
**Supports** 

Works with both Modbus TCP and Modbus RTU (RS485, RS232) protocols, can connect to WiFi, and has a LAN port and SIM slot for connecting to the internet.

- Durable and Strong Enclosure is a steel cabinet with a cover and roof, offering protection against dust and water.
- User-Friendly Interface Features an easy-to-understand dashboard, notification system, reporting, and historical data tracking, available in the Thai language.









CPU	Intel Celeron J4125 (4 core 4 threads, 4M Cache, 2.00GHz, up to 2.70GHz, TDP: 10W)
Graphics Card	Intel UHD Graphics 600
Memory(RAM)	8GB DDR4
Storage	128GB M2 NGFF SSD
Dual Display	Support 4K @60Hz 2* HDMI on external interface + 1 * LVDS on internal connectors
Support System	Linux Ubuntu
External Interface	1 x DC-IN 2 x HDMI 5 x USB3.2 GEN1(5Gbps)+ 3 x USB2.0 2 x LAN 1 x MIC-IN + 1 xHP-OUT 1 x REC (Ghost button (one-key system restore) 1 x RST (Reset button & CLR_CMOS button) 2 x LED 1 x HDD LED(Red), 1 x WIFI & 4G module states(Green) 1 x PWR BT
Internal Connectors	1 x Debug 1 x LVDS 1 x SATA PWR + 1 X SATA 1 x COM_CONN (4*COM232, support RS232 / RS485 set on COM1) 1 x JFP (auto power on set up jumper) 1 x GPIO 1 x AUDIO + 1 x Speaker 1 x F USB2.0
Audio	Realtek ALC662/ALC887; Integrated power amplifier NS4251 3W@4Q max
Ethernet port	2 x Realtek Gigabit Ethernet (RTL8111H/8111G)
WIFI	Half-Height Mini PCle, Support WiFi
Other	Wake UP on LAN, S5 RTC Wake Settings, PXE Boot, Restore AC power loss (Auto Power On)
Power Consumption	DC 12V-3A/ 36W or DC 12V-5A/ 60W (AC TO DC, 100~ 240V)



Mounted	Wall-mounted/Desktop
Chassis Material	Aluminum alloy
Operating Temperature	- 20°C - 60°C
Storage Temperature	-30°C - 70°C (15°C - 35°C recommended)
Relative Humidity	10%~90% @30°C,Relative humidity, No condensation
Dimension	136 x 126 x 46 mm
Bluetooth	Bluetooth 4.0
Case	Steel
IoT size box	H: 350 x W: 280 x D: 150 mm
Weight	5 kg

### Mini Industrial Server (MIS) Features







RS232/RS485





GPIO 10P



8x USB



DDR4 RAM



M.2 SSD



2x HDMI 1x LVDS



expansion



wide voltage













# HighDO (EC)

A system that measures water quality using software platforms and IoT devices.

HighDO is a water quality measurement solution developed with high-quality IoT devices and a real-time software platform for monitoring and analysis. It can also be customized or adapted to specific needs without affecting the existing system.



### **Key Features**



#### **Efficiency**

Can measure various values related to water quality such as electrical conductivity, temperature etc.



#### **Customization and flexibility**

Support customization or additions according to specific requirements such as Phosphorus sensor, Turbidity Sensor, Biological Oxygen Demand (BOD) Sensor, Chemical Oxygen Demand (COD) Sensor, dissolved oxygen (DO) sensor etc.





#### Easy installation and compatibility

Adopts Plug and Play principle which makes it easy to integrate with existing systems.



#### Easy to use

Has a clear information show on display screen and status lights.



#### Strong and durable

It is an aluminum enclosure with a lid and roof, dustproof, waterproof, and unbreakable.













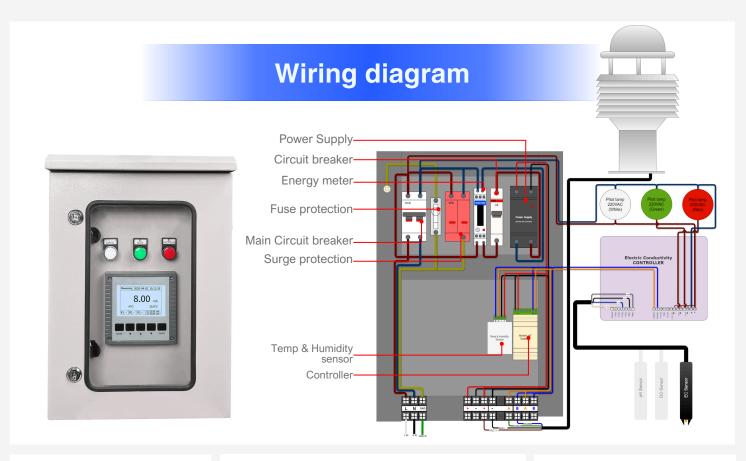
Micro SD card

**USB type C port** 

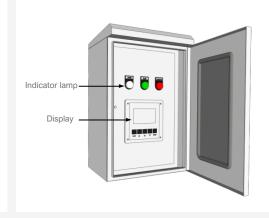
ARM Cortex-M 32-bit

RS485 / RS232

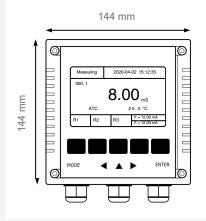


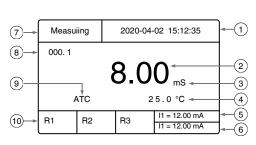










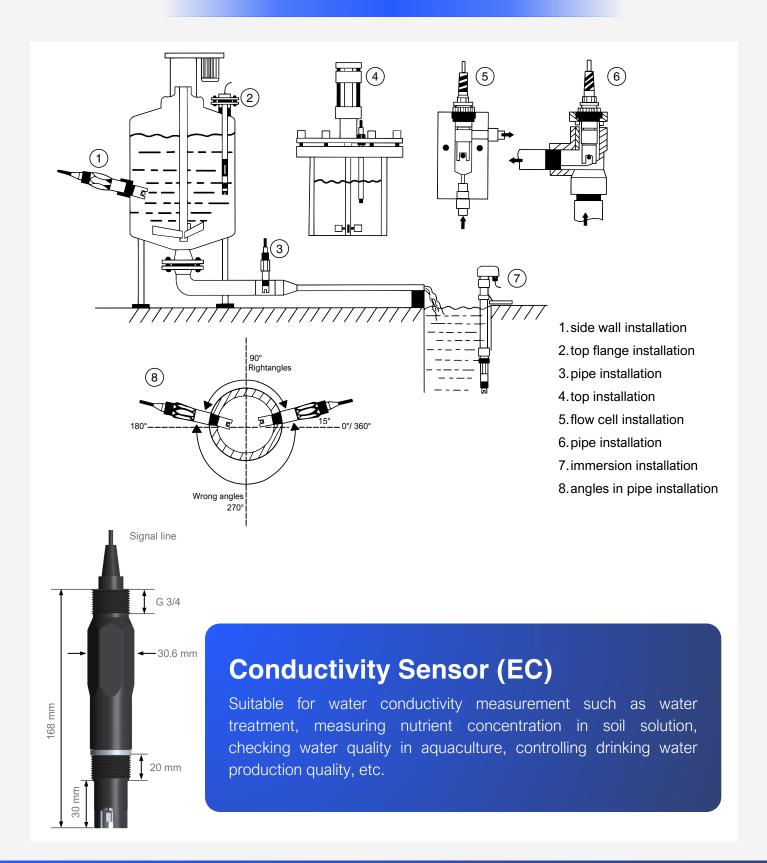


Display

- 1. Date and time
- 2. Main display
- 3.Unit
- 4. Temperature and unit
- 5. First current output
- 6. Second current output
- 7. Measurement status and Error indicator
- 8. Count down timer
- 9. Temp. compensation: auto(ATC) or manual(MTC)
- 10. Relay indicator



### **Electrode Installation**





MCU	ARM Cortex-M 32- bit RISC ARM Processor cores
Interface port	RS485 or RS232 isolation with auto-direction (Software mode selection) RS485 or I2C with auto-direction
Indicator lamp	LED Open LED Run LED Overdue
Power supply	24 Vdc
Display	LCD
USB type C port	Program Upload
Case	Aluminium
EC sensor	Technical data  • Support measuring: Conductivity / TDS / Salinity  • Measuring range: 0 - 2000μS/cm  • Accuracy: <2%  • Resolution: ±1 μS/cm  • Temp. measure range: 0.0 - 60.0 °C  • Temp. compensation: Automatic/Manual  • Output signal: RS485;4 - 20mA  • Power supply: DC9-30 VDC Recommend 24 VDC  • Shell material: PPS,ABS  • Pipe thread: M39*1.5,3/4  • Cable length: 5m or customized  • Protection grade: Ip68
EC Controller	Specifications  • Measuring range : 0.00 to 20.00/0.00 to 2.00 μS/cm  • Resolution : 0.01/0.001 μS/cm  • Accuracy : ±0.01ppm / ±0.001 μS/cm  • Temp. compensation : -10.0 to +130.0°C  • Temp. range : -10.0 to +130.0°C  • Temp. compensation range : -10.0 to +130.0°C  • Storage temp : -20 to +70°C  • Display : Back light, dot matrix LCD display  • Current output accuracy : ±0.05 mA  • Baud rate : 9600/19200/38400  • Relay delay: 0-120 seconds  • Data logging capacity : 500,000  • Waterproof grade : IP65
IoT Box Size	H: 500 x W: 350 x D: 280 mm
Weight	18 kg



# HighDO (DO)

A system that measures water quality using software platforms and IoT devices.

HighDO is a water quality measurement solution developed with high-quality IoT devices and a real-time software platform for monitoring and analysis. It can also be customized or adapted to specific needs without affecting the existing system.



### **Key Features**



#### **Efficiency**

Can measure various values related to water quality such as electrical conductivity, temperature etc.



#### **Customization and flexibility**

Support customization or additions according to specific requirements such as Phosphorus sensor, Turbidity Sensor, Biological Oxygen Demand (BOD) Sensor, Chemical Oxygen Demand (COD) Sensor, dissolved oxygen (DO) sensor etc.





#### Easy installation and compatibility

Adopts Plug and Play principle which makes it easy to integrate with existing systems.



#### Easy to use

Has a clear information show on display screen and status lights.



#### Strong and durable

It is an aluminum enclosure with a lid and roof, dustproof, waterproof, and unbreakable.











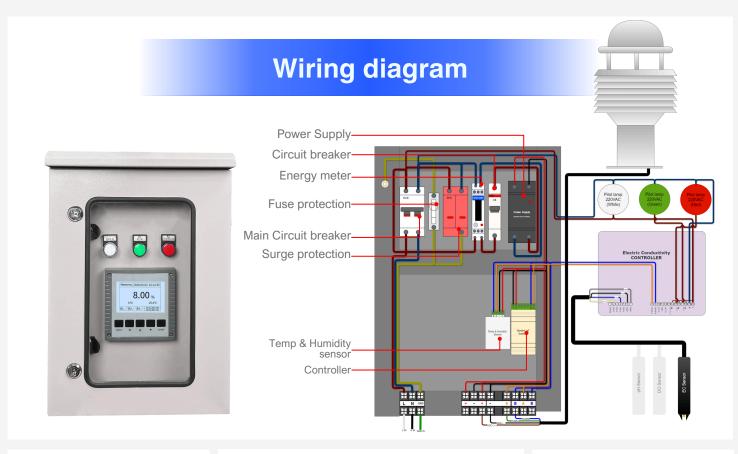


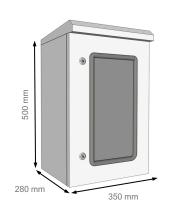
**USB** type C port

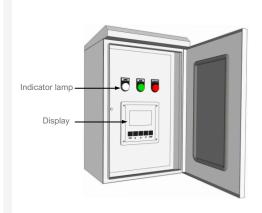
ARM Cortex-M 32-bit

RS485 / RS232

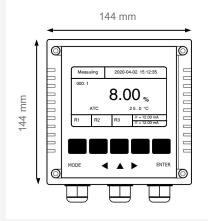


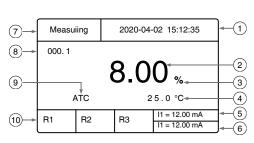










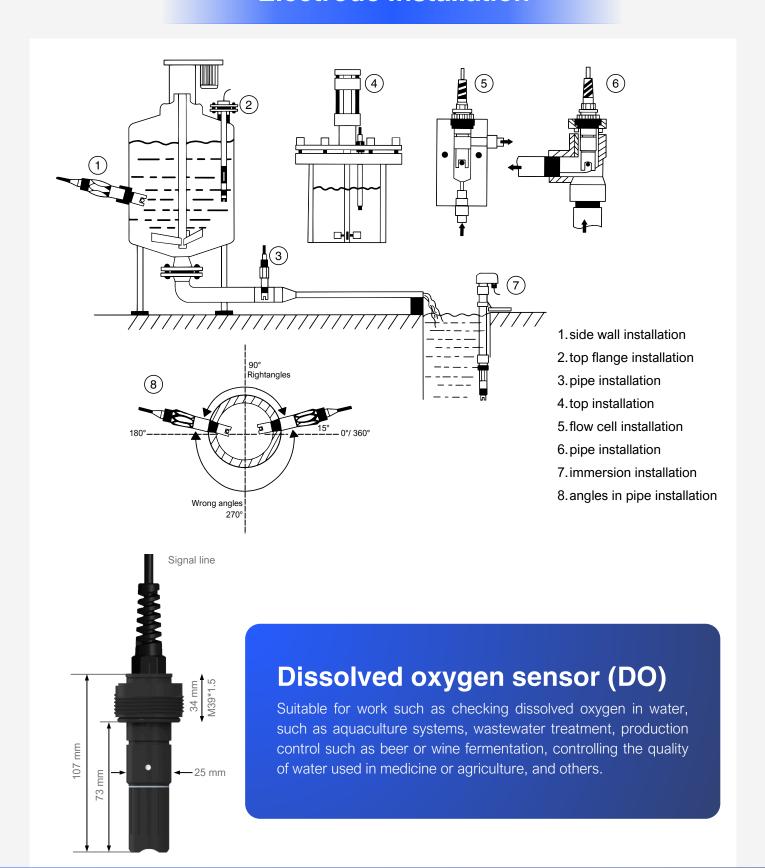


Display

- 1. Date and time
- 2. Main display
- 3.Unit
- 4. Temperature and unit
- 5. First current output
- 6. Second current output
- 7. Measurement status and Error indicator
- 8. Count down timer
- 9. Temp. compensation: auto(ATC) or manual(MTC)
- 10. Relay indicator



### **Electrode Installation**





MCU	ARM Cortex-M 32- bit RISC ARM Processor cores
Interface port	RS485 or RS232 isolation with auto - direction (Software mode selection) RS485 or I2C with auto-direction
Indicator lamp	LED Open LED Run LED Overdue
Power supply	24 Vdc
Display	LCD
USB type C port	Program Upload
Case	Aluminium
Do sensor	<ul> <li>Measuring range: 0.00 - 20.00 mg/L(ppm)</li> <li>Accuracy: +2%FS</li> <li>Temperature range: 0.0 - 60.0°C</li> <li>Temperature sensor: NTC22K</li> <li>Response time: 90% &lt; 90 seconds</li> <li>Medium flow rate: &gt; 0.02 m/s</li> <li>Calibration interval: Once every 1 month</li> <li>Shell material: ABS</li> <li>Pressure range: 0 - 2bar</li> <li>Polarization voltage: 675mV</li> <li>Process connection thread: M39 * 1.5</li> <li>Cable length: 5m or customize</li> <li>Electrical connection: Pin type or BNC connector</li> <li>Protection grade: IP68</li> </ul>
Do Controller	<ul> <li>Measuring range: 0.00 - 400.00</li> <li>Resolution: 0.1</li> <li>Accuracy: ± 0.2</li> <li>Temp. compensation: Pt-1000 / NTC22K</li> <li>Temp. range: -10.0 to + 130.0°C</li> <li>Temp. compensation range: -10.0 to + 130.0°C</li> <li>Sensor current measurement range: -2.0 to + 400 nA</li> <li>Sensor current measurement accuracy: ±0.005 nA</li> <li>Polarrization voltage range: -0.675 V</li> <li>Pressure range: 500 to 9999 mBar</li> <li>Salinity compensation range: 0.00 - 50.00 ppt</li> <li>Ambient temperature range: 0 - 70 °C</li> <li>DO current output1: isolated 4 - 20 mA output, max. load 500 Ω</li> </ul>
IoT Box Size	H: 500 x W: 350 x D: 280 mm
Weight	18 kg



# pHixIt

pHixIt is a pH monitoring systems through the development of software platforms and IoT devices, that will enable accurate and not complicated measurement of pH. Have transmits data in real-time. And There is also a notification to users via LINE Notify when the pH value changes abnormally, or when summarizing daily information.



### **Key Features**

- **Ability:** There is a software platform that can monitor the operation of the device in real time, such as measuring pH, temperature, and relative humidity.
- Easy to use: User manuals and display screens of the platform software have been prepared to be easy to understand and in Thai language.
- Easy installation and compatibility: The solution has been developed in a plug-andplay format. allowing easy connection to other devices or sensors, such as in food and beverage production systems. or in the chemical industry.
- Customization and flexibility: Supports customization or additions according to specific requirements such as a weather station sensor, measure the amount of rain, Chlorine sensor, Nitrate sensor, Phosphorus sensor, and Potassium sensor.
- **Strength and durability:** The cabinet material is made of steel. Has a cover and roof for dustproof and waterproof protection.
- Data Security: It has an industrial-grade Industrial IoT eSIM (MFF2) chip designed to
  operate in industrial environments. and can connect to the internet with service provider
  networks in Thailand It also has an encrypted hardware chip. (CryptoAuthentication)
  makes data transmission using IoT technology extremely secure and reliable.



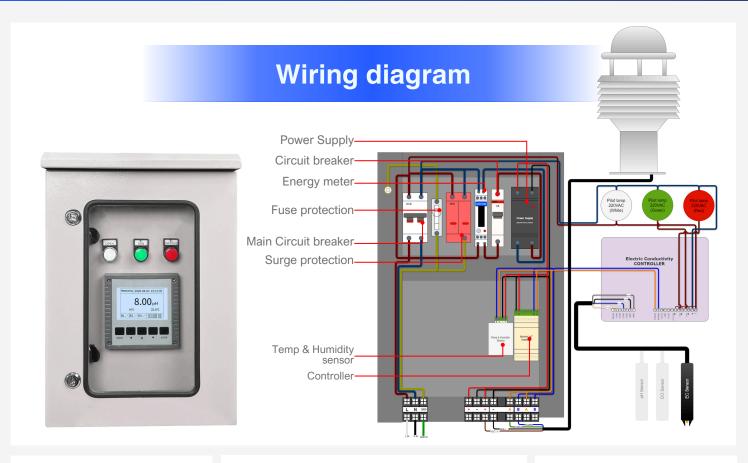


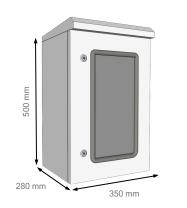


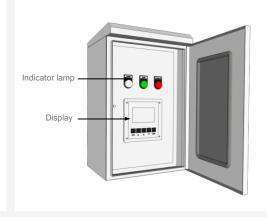




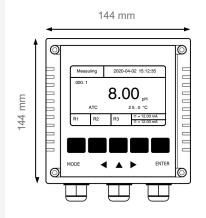


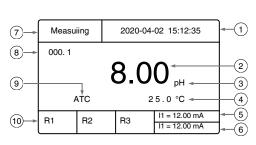










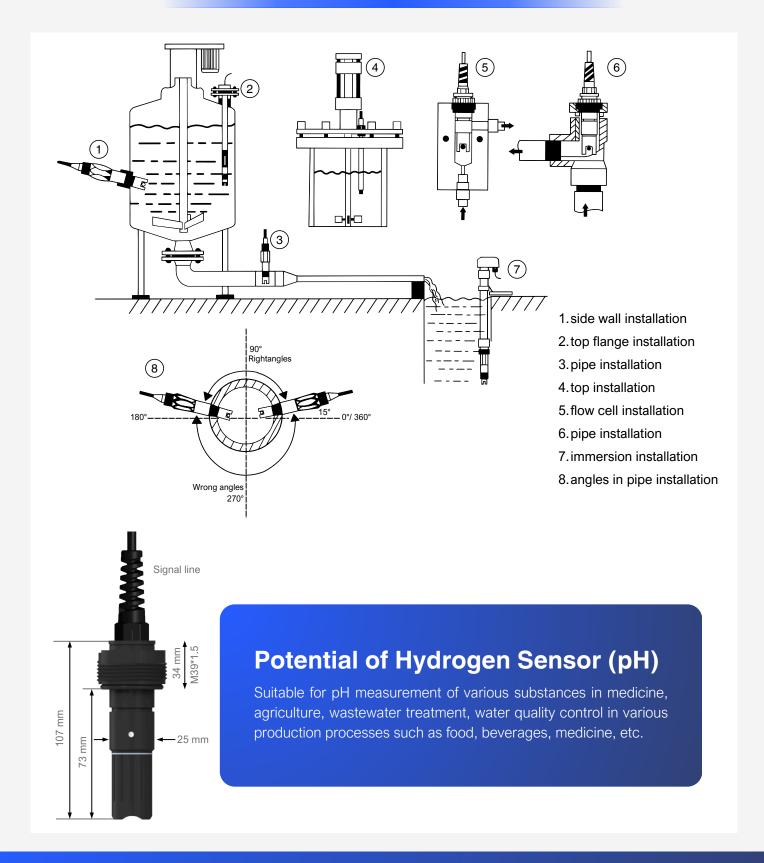


Display

- 1. Date and time
- 2. Main display
- 3.Unit
- 4. Temperature and unit
- 5. First current output
- 6. Second current output
- 7. Measurement status and Error indicator
- 8. Count down timer
- 9. Temp. compensation: auto(ATC) or manual(MTC)
- 10. Relay indicator



### **Electrode Installation**





MCU	ARM Cortex-M 32- bit RISC ARM Processor cores
Interface port	RS485 or RS232 isolation with auto-direction (Software mode selection) RS485 or I2C with auto-direction
Indicator lamp	LED Open LED Run LED Overdue
Power supply	24 V
Display	LCD
USB type C port	Program Upload
Case	Aluminium
pH sensor	Technical data  PH range: 0 - 14pH (Resolution: 0.01 pH, Accuracy: ±0.01 pH)  PH balance: 7.00 ± 0.25  Temperature range: 0.0 - 60°C (Resolution: 0.1°C Accuracy: ±0.3 °C)  Temperature compensation: Automatic  Output: RS485;4 - 20mA  Power supply: DC9 - 30V (Recommend 12V)  Pressure range: 0 - 3bar  Shell material: PPS, ABS  Liquid junction: PTFE  Pipe thread: 3/4, M39* 1.5  Cable length: 5m or customized  Protection grade: IP68
pH Controller	Specifications  • Measuring range : 0.00 - 20.00/0.00 - 2.00 μS/cm  • Resolution : 0.01/0.001 μS/cm  • Accuracy : ±0.01ppm / ±0.001 μS/cm  • Temp. compensation : -10.0 - +130.0°C  • Temp. range : -10.0 - 130.0°C  • Temp. compensation range : -10.0 - 130.0°C  • Storage temp : -20 - 70°C  • Display : Back light, dot matrix LCD display  • Current output accuracy : ±0.05 mA  • Baud rate : 9600/19200/38400  • Relay delay: 0-120 seconds  • Data logging capacity : 500,000  • Waterproof grade : IP65
IoT Box Size	H: 500 x W: 350 x D: 280 mm
Weight	18 kg



## AquaDuo Set A

AquaDuo Set A is a solution that will simplify water quality measurement. and more efficient can be used in the food, beverage, and agricultural production industries. By monitoring pH (positive potential of the hydrogen ions) and DO (Dissolved oxygen) values from IoT devices through a dashboard on the software platform in real time. and notification system via LINE Notify.



### **Key Features**



#### **Ability**

There is a software platform that can monitor the operation of the device in real time, such as measuring pH, dissolved oxygen, temperature and relative humidity.



#### **Easy installation and compatibility**

The solution has been developed in a plug and play format. allowing easy connection to other devices or sensors, such as in the food, beverage, and agricultural production industries.



#### Easy to use

User manuals and display screens of the platform software have been prepared to be easy to understand and in Thai language.



#### Strength and durability

The cabinet material is made of steel. Has a cover and roof for dustproof and waterproof protection.



#### **Customization and flexibility**

Supports customization or additions according to specific requirements such as adding an Airlar solution, adding an electrical conductivity sensor, adding a weather station, adding a rain sensor, adding a Chlorine sensor, adding a Nitrate sensor, adding a Phosphorus Sensor, and adding a Potassium sensor.



#### **Data Security**

It has an industrial-grade Industrial IoT eSIM (MFF2) chip designed to operate in industrial environments. and can connect to the internet with service provider networks in Thailand It also has an encrypted hardware chip. (CryptoAuthentication) makes data transmission using IoT technology extremely secure and reliable.









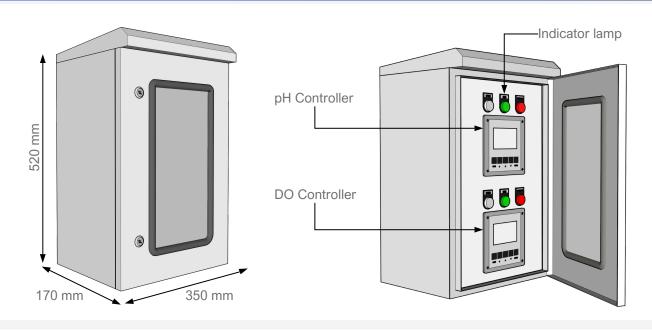


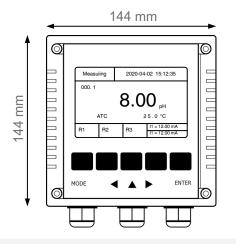
USB type C port

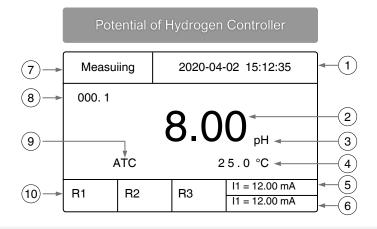
ARM Cortex-M 32-bit

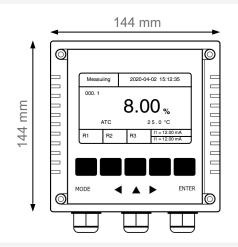
RS485 / RS232











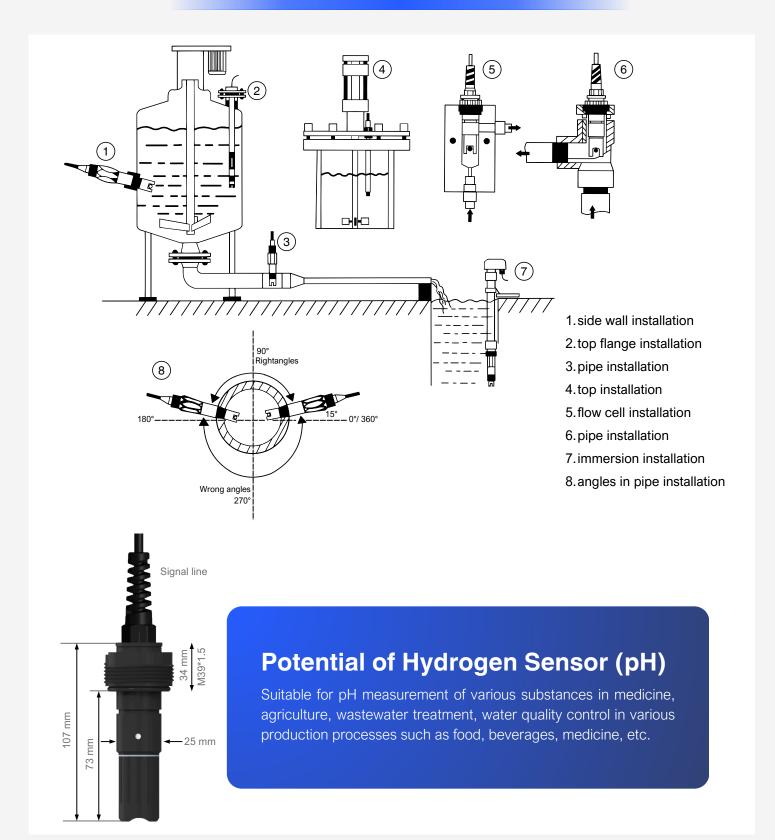
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- 1. Date and time
- 2. Main display
- 3. Unit
- 4. Temperature and unit
- 5. First current output

- 6. Second current output
- 7. Measurement status and Error indicator
- 8. Count down timer
- 9. Temp. compensation: auto(ATC) or manual(MTC)
- 10. Relay indicator



### **Electrode Installation**







## Dissolved oxygen sensor (DO)

Suitable for work such as checking dissolved oxygen in water, such as aquaculture systems, wastewater treatment, production control such as beer or wine fermentation, controlling the quality of water used in medicine or agriculture, and others.

MCU	ARM Cortex-M 32- bit RISC ARM Processor cores
Interface port	RS485 or RS232 isolation with auto-direction (Software mode selection) RS485 or I2C with auto - direction
Indicator lamp	LED Open LED Run LED Overdue
Power supply	24 Vdc
Display	LCD
USB type C port	Program Upload
Case	Aluminium
pH sensor	Technical data  • pH range : 0 - 14 pH (Resolution : 0.01 pH, Accuracy : ±0.01 pH)  • pH balance : 7.00±0.25  • Temperature range : 0.0 - 60°C (Resolution : 0.1°C Accuracy : ±0.3 °C)  • Temperature compensation : Automatic  • Output : RS485;4 - 20mA  • Power supply : DC9 - 30V(Recommend 12V)  • Pressure range : 0 - 3bar  • Shell material : PPS, ABS  • Liquid junction : PTFE  • Pipe thread : 3/4, M39* 1.5  • Cable length : 5m or customized  • Protection grade : IP68



pH Controller	Specifications  • Measuring range : 0.00 - 20.00/0.00 - 2.00 μS/cm  • Resolution : 0.01/0.001 μS/cm  • Accuracy : ±0.01ppm / ±0.001 μS/cm  • Temp. compensation : -10.0 - 130.0°C  • Temp. range : -10.0 - 130.0°C  • Temp. compensation range : -10.0 - 130.0°C  • Storage temp : -20 - 70°C  • Display : Back light, dot matrix LCD display  • Current output accuracy : ±0.05 mA  • Baud rate : 9600/19200/38400  • Relay delay: 0 - 120 seconds  • Data logging capacity : 500,000  • Waterproof grade : IP65
Do sensor	<ul> <li>Measuring range: 0.00 - 20.00 mg/L(ppm)</li> <li>Accuracy: +2% FS</li> <li>Temperature range: 0.0 - 60.0°C</li> <li>Temperature sensor: NTC22K</li> <li>Response time: 90% &lt; 90 seconds</li> <li>Medium flow rate: &gt; 0.02 m/s</li> <li>Calibration interval: Once every 1 month</li> <li>Shell material: ABS</li> <li>Pressure range: 0 - 2bar</li> <li>Polarization voltage: 675mV</li> <li>Process connection thread: M39* 1.5</li> <li>Cable length: 5m or customize</li> <li>Electrical connection: Pin type or BNC connector</li> <li>Protection grade: IP68</li> </ul>
Do Controller	<ul> <li>Specifications</li> <li>Measuring range: 0.00 - 400.00</li> <li>Resolution: 0.1</li> <li>Accuracy: ±0.2</li> <li>Temp. compensation: Pt - 1000 / NTC22K</li> <li>Temp. range: -10.0 to +130.0°C</li> <li>Temp. compensation range: -10.0 - 130.0°C</li> <li>Sensor current measurement range: -2.0 - 400 nA</li> <li>Sensor current measurement accuracy: ±0.005 nA</li> <li>Polarrization voltage range: -0.675 V</li> <li>Pressure range: 500 - 9999 mBar</li> <li>Salinity compensation range: 0.00 to 50.00 ppt</li> <li>Ambient temperature range: 0 - 70 °C</li> <li>DO current output1: isolated 4-20 mA output, max. load 500 Ω</li> </ul>
loT Box Size	H: 500 x W: 350 x D: 280 mm
Weight	20 kg



# AquaDuo Set B

AquaDuo Set B is a solution that will simplify water quality measurement. and more efficiently can be used in the food, beverage, and agricultural production industries. By monitoring pH (positive potential of the hydrogen ions) and EC (Electrical Conductivity) values from IoT devices through a dashboard on the software platform in real time. and notification system via LINE Notify.



### **Key Features**



#### **Ability**

There is a software platform that can monitor the operation of the device in real time, such as measuring pH, electrical conductivity, temperature and relative humidity.



#### Easy installation and compatibility

The solution has been developed in a plug and play format. allowing easy connection to other devices or sensors, such as in the food, beverage, and agricultural production industries.



#### Easy to use

User manuals and display screens of the platform software have been prepared to be easy to understand and in Thai language.



#### Strength and durability

The cabinet material is made of steel. Has a cover and roof for dustproof and waterproof protection.



#### **Customization and flexibility**

Supports customization or additions according to specific requirements such as a Airlar solution, dissolved oxygen sensor, weather station sensor, measure the amount of rain, Chlorine sensor, Nitrate sensor, Phosphorus Sensor, and Potassium sensor.



#### **Data Security**

It has an industrial-grade Industrial IoT eSIM (MFF2) chip designed to operate in industrial environments. and can connect to the internet with service provider networks in Thailand It also has an encrypted hardware chip. (CryptoAuthentication) makes data transmission using IoT technology extremely secure and reliable.







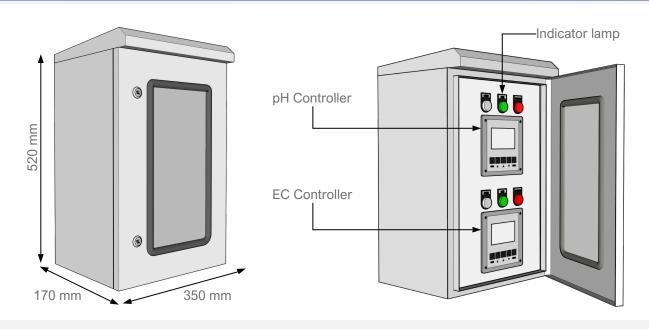


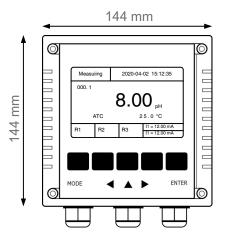


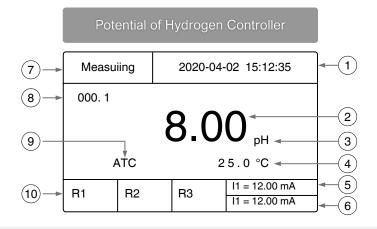
USB type C port ARM Cortex-M 32-bit

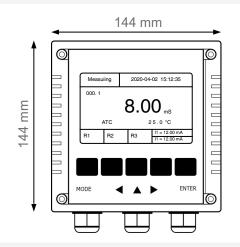
RS485 / RS232











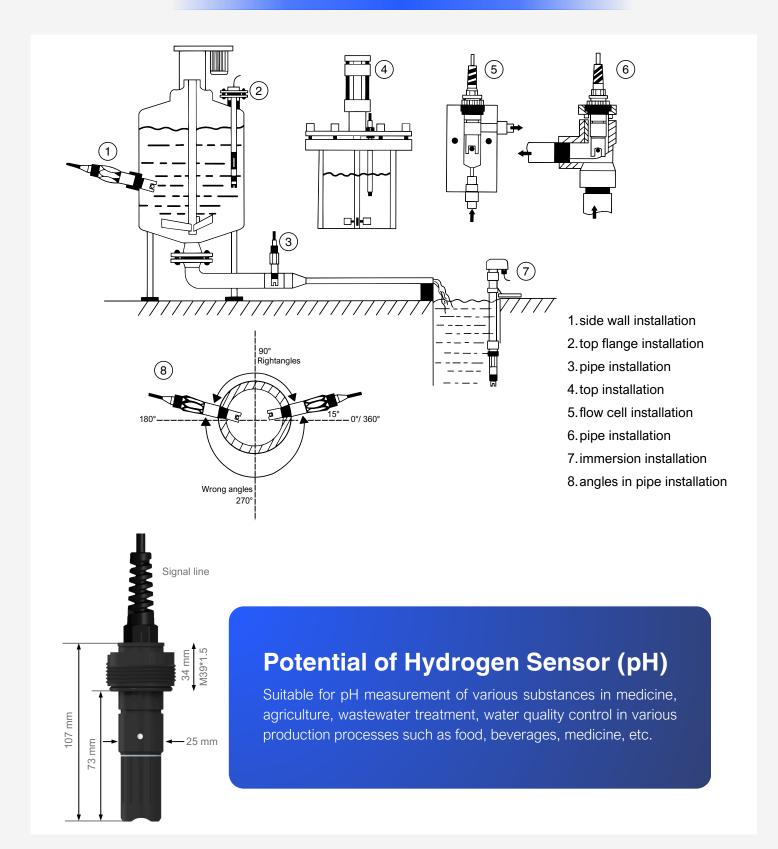
#### (1)Measuiing 2020-04-02 15:12:35 000.1 (8) 8.0 (9) 3 AŤC 25.0 °C ◀ 4) (5) I1 = 12.00 mA (10)R1 R2 R3 I1 = 12.00 mA

- 1. Date and time
- 2. Main display
- 3. Unit
- 4. Temperature and unit
- 5. First current output

- 6. Second current output
- 7. Measurement status and Error indicator
- 8. Count down timer
- 9. Temp. compensation: auto(ATC) or manual(MTC)
- 10. Relay indicator



### **Electrode Installation**







### **Conductivity Sensor (EC)**

Suitable for water conductivity measurement such as water treatment, measuring nutrient concentration in soil solution, checking water quality in aquaculture, controlling drinking water production quality, etc.

MCU	ARM Cortex-M 32- bit RISC ARM Processor cores
Interface port	RS485 or RS232 isolation with auto-direction (Software mode selection) RS485 or I2C with auto - direction
Indicator lamp	LED Open LED Run LED Overdue
Power supply	24 Vdc
Display	LCD
USB type C port	Program Upload
Case	Aluminium
pH sensor	Technical data  PH range: 0 - 14pH (Resolution: 0.01 pH, Accuracy: ±0.01 pH)  PH balance: 7.00 ± 0.25  Temperature range: 0.0 - 60°C (Resolution: 0.1°C Accuracy: ±0.3°C)  Temperature compensation: Automatic  Output: RS485;4 - 20mA  Power supply: DC9-30V(Recommend 12V)  Pressure range: 0 - 3bar  Shell material: PPS, ABS  Liquid junction: PTFE  Pipe thread: 3/4, M39* 1.5  Cable length: 5m or customized  Protection grade: IP68



pH Controller	Specifications  • Measuring range : 0.00 - 20.00/0.00 - 2.00 μS/cm  • Resolution : 0.01/0.001 μS/cm  • Accuracy : ±0.01ppm / ±0.001 μS/cm  • Temp. compensation : -10.0 - 130.0°C  • Temp. range : -10.0 - 130.0°C  • Temp. compensation range : -10.0 - 130.0°C  • Storage temp : -20 - 70°C  • Display : Back light, dot matrix LCD display  • Current output accuracy : ±0.05 mA  • Baud rate : 9600/19200/38400  • Relay delay: 0 - 120 seconds  • Data logging capacity : 500,000  • Waterproof grade : IP65
EC sensor	Technical data  • Support measuring : Conductivity / TDS / Salinity  • Measuring range : 02000μS/cm  • Accuracy : <2%  • Resolution : ±1 μS/cm  • Temp. measure range : 0.0 - 60.0 °C  • Temp. compensation : Automatic/Manual  • Output signal : RS485;4 - 20mA  • Power supply : DC9 - 30 VDC Recommend 24 VDC  • Shell material : PPS, ABS  • Pipe thread : M39* 1.5, 3/4  • Cable length : 5m or customized  • Protection grade : IP68
EC Controller	Specifications  • Measuring range : 0.00 - 20.00/0.00 - 2.00 μS/cm  • Resolution : 0.01/0.001 μS/cm  • Accuracy : ±0.01ppm / ±0.001 μS/cm  • Temp. compensation : -10.0 - 130.0°C  • Temp. range : -10.0 - 130.0°C  • Temp. compensation range : -10.0 - 130.0°C  • Storage temp : -20 - 70°C  • Display : Back light, dot matrix LCD display  • Current output accuracy : ±0.05 mA  • Baud rate : 9600/19200/38400  • Relay delay: 0 - 120 seconds  • Data logging capacity : 500,000  • Waterproof grade : IP65
Enclosure size	H: 500 x W: 350 x D: 280 mm
Weight	20 kg.



# Chill Chill

Temperature tracking system through IoT devices and software platforms.

Chill Chill It is a system that will make temperature monitoring easier, more accurate, and more efficient through IoT devices and software platforms. The data is stored on the cloud to be displayed on the web application in real time. and sending notification messages when daily results are summarized or when the temperature changes abnormally via LINE Notify.



### **Key Features**



#### **Ability**

There is a software platform that can monitor the operation of the device in real time, such as temperature readings. and relative humidity.



#### Easy installation and compatibility

The solution has been developed in a plug and play format. allowing easy connection to other devices or sensors, such as in food freezers, medicines, or in rooms. Keep cool in transportation systems.



#### Easy to use

User manuals and display screens of the platform software have been prepared to be easy to understand and in Thai language.



#### Strength and durability

The cabinet material is made of steel. Has a cover and roof for dustproof and waterproof protection.



#### **Customization and flexibility**

Supports customization or additions according to specific needs such as Add a pH sensor. Add a relative humidity sensor or add a nitrogen sensor.



#### **Data Security**

It has an industrial-grade Industrial IoT eSIM (MFF2) chip designed to operate in industrial environments. and can connect to the internet with service provider networks in Thailand It also has an encrypted hardware chip. (CryptoAuthentication) makes data transmission using IoT technology extremely secure and reliable.



Microchip ATECC608A



Micro SD card



**USB type C port** 

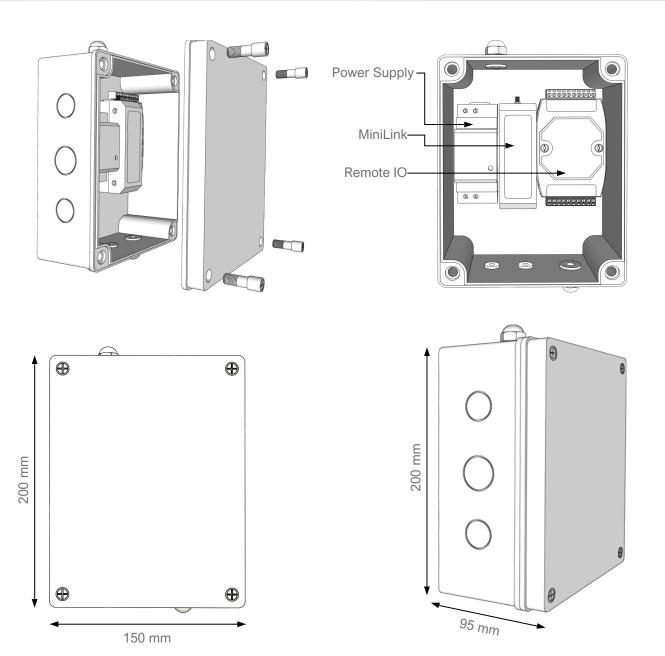


ARM Cortex-M 32-bit



RS485 / RS232







### **Temperature Sensor**

Suitable for work that measures temperature or humidity, such as measuring the temperature inside refrigerators, freezers, systems for maintaining the quality of raw materials, food, drugs, or chemicals and temperature maintenance systems for transportation refrigeration systems, etc.



MCU	ARM Cortex-M 32- bit RISC ARM Processor cores
Interface port	RS485 or RS232 isolation with auto-direction (Software mode selection) RS485 or I2C with auto - direction
Indicator lamp	LED Open LED Run LED Overdue
Power supply	24 V
Display	LCD
USB type C port	Program Upload
loT control box	Waterproof
Temperature sensor	Specifications  • Usable with 3.0V - 5.5V power/ data Resolution  • ±0.5°C Accuracy from -10°C - 85°C Accuracy  • Usable temperature range: -55 - 125°C (-67°F to +257°F)  • 9 to 12 bit selectable resolution  • Uses 1-Wire interface- requires only one digital pin for communication  • Unique 64 bit ID burned into chip  • Multiple sensors can share one pin  • Temperature-limit alarm system  • Query time is less than 750 ms  • 3 wires interface: Red wire - VCC, Black wire - GND, Yellow wire - DATA  • Stainless steel tube 6 mm diameter by 35 mm long  • Cable diameter: 4 mm  • Length: 90 cm
IoT size box	H: 200 x W: 150 x D: 95 mm
Weight	500 g



# Radar

Efficient Weather Measurement System and Platform with IoT Devices

Radar is a detailed weather measurement system developed using IoT devices and a software platform to monitor and analyze control or monitoring systems to suit specific needs without affecting the system.



### **Key Features**



#### **Efficiency**

Can measure various values related to weather conditions such as temperature, humidity, air pressure, etc.



#### **Customization and flexibility**

Supports customization or addition of specific requirements such as dust, wind, rainfall, PM 2.5 etc.



#### Easy installation and compatibility

Adopts Plug and Play principle which makes it easy to integrate with existing systems.



#### Easy to use

Has a clear information show on display screen and status lights.



#### Strong and durable

It is an aluminum enclosure with a lid and roof, dustproof, waterproof, and unbreakable.

Solar Panal



**Weather Station** 



#### **ARM Cortex-M 32-bit**

32-bit dual-core processor.



#### 4G

Support 4G connection.



#### Memory

Built-in memory of 512 KB.



#### **RS485**

Communicates via RS485.



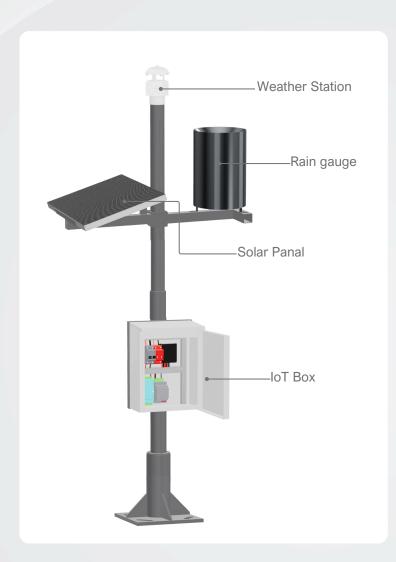
Accessories

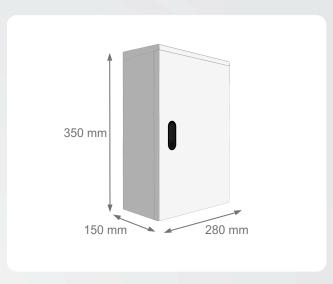


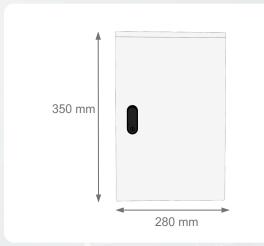


# **Overview**

# **Solution Components**









## **Weather Station**

A Weather Station collects and records data on temperature, humidity, wind speed and direction, atmospheric pressure, and rainfall. This information is essential for weather forecasting and climate studies. Automatic stations can transmit real-time data via the internet or other systems.



MCU	32-bit dual-core processor
Interface port	RS485 or RS232 isolation with auto - direction (Software mode selection) Rs485 or I2C with auto-direction
Indicator lamp	Includes 2 status indicator LEDs
Memory	512 KB
USB type C port	Program Upload
IoT control box	Waterproof
Clock speed	240 MHz
User switch	1 button

Sensor Temperati	Sensor Temperature Humidity Light	
Parameter	Measurement Range	Accuracy
Humidity	-20 %RH ~ 95 %RH	±3 %RH (60 %RH, 25 °C)
Temperature	-40 °C ~ +120 °C	±0.5 °C (25 °C)
Brightness	0 ~ 200 kLux	±7% (25 °C)
Noise	30 dB ~ 130 dB	±3 db
PM10 PM2.5	0 ~ 1000 μg/m3	±10% (25 °C)
Rainfall	0.5 mm	≤±2%
Wind Level	0 ~ 30 m/s	±(0.3 + 0.03V) M/S ± 1°
Wind Direction	0 ~ 360°	±(0.3 + 0.03V) M/S ± 1 °
IoT size box	H: 500 x W: 350 x D: 280 mm	
Weight	6 kg.	



# Airlar

Efficient Air Quality Measurement System and Platform with IoT Devices.

Airlar is a detailed air quality measurement system developed with IoT devices and a software platform to monitor and analyze control systems or monitoring systems to suit specific needs without affecting the system.









4G



Micro SD card



RS485 / RS232

## **Key Features**



#### Efficiency

Can measure various values related to air quality, such as sulfur dioxide, nitrogen dioxide and PM 2.5 etc.



#### **Customization and Flexibility**

Support customization or additions to specific requirements, such as dust, sulfur dioxide, nitrogen dioxide, carbon monoxide, etc.



#### Easy installation and compatibility

Adopts Plug and Play principle which makes it easy to integrate with existing systems.



#### Easy to use

Has a clear information show on display screen and status lights.



#### Strong and durable

It is an aluminum enclosure with a lid and roof, dustproof, waterproof, and unbreakable.

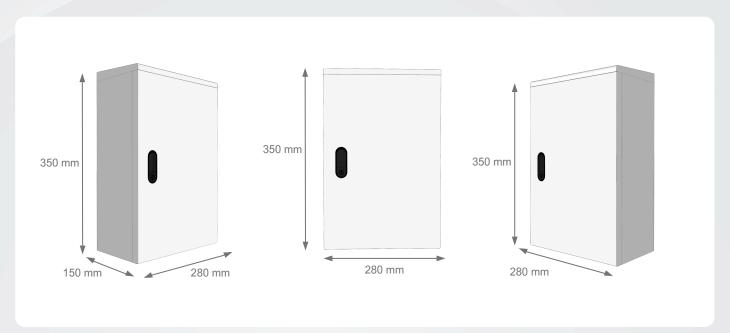


**Weather Station** 



## **Overview**

## Structure of the IoT box





## **Weather Station**

A Weather Station collects and records data on temperature, humidity, wind speed and direction, atmospheric pressure, and rainfall. This information is essential for weather forecasting and climate studies. Automatic stations can transmit real-time data via the internet or other systems.

Technical Information		
Parameter	Measurement Range	Accuracy
Humidity	-20 %RH ~ 95 %RH	±3 %RH (60 %RH, 25 °C)
Temperature	-40 °C ~ +120 °C	±0.5 °C (25 °C)
Brightness	0 ~ 200 kLux	±7% (25 °C)
Noise	30 dB ~ 130 dB	±3 db
PM10 PM2.5	0 ~ 1000 μg/m3	±10% (25 °C)



MCU	ARM Cortex-M 32- bit RISC ARM Processor cores
Interface port	RS485 or RS232 isolation with auto-direction (Software mode selection) Rs485 or I2C with auto - direction
Indicator lamp	Includes 2 status indicator LEDs
Memory	512 KB
Power supply	24 V
USB type C port	Program Upload
IoT control box	Waterproof
Clock speed	240 MHz
IoT size box	H: 500 x W: 350 x D: 280 mm
Weight	6 kg



# LensLevel

A solution that will help improve the traditional water level measurement with a real-time alert function and a highprecision level measurement system via a camera with Image Processing technology. It processes and stores data via a Mini Industrial PC, suitable for surveillance, warning, and monitoring.



## **Key Features**



**Efficiency** High accuracy and real-time by applying image processing technology.

**Operation** Consumes low power and generates low heat, allowing continuous operation when working 24/7.

**User-Friendly Interface** Features an easy-to-understand dashboard, notification system, reporting, and historical data tracking, available in the language.

**Local Data Storage** Capable of storing data locally without need for cloud storage and Increase data security.

**Linux Operating System** Runs on Linux Ubuntu 20.04.

**Durable and Strong** Enclosure is a steel cabinet with a cover and roof, offering protection against dust and water.

Supports Works with both Modbus TCP and Modbus RTU (RS485, RS232) protocols, can connect to WiFi, and has a LAN port and SIM slot for connecting to the internet

## Mini Industrial Server (MIS) Features



**GPIO** 





DDR4 RAM





2x HDMI 1x LVDS



mini PCI-E expansion wide voltage

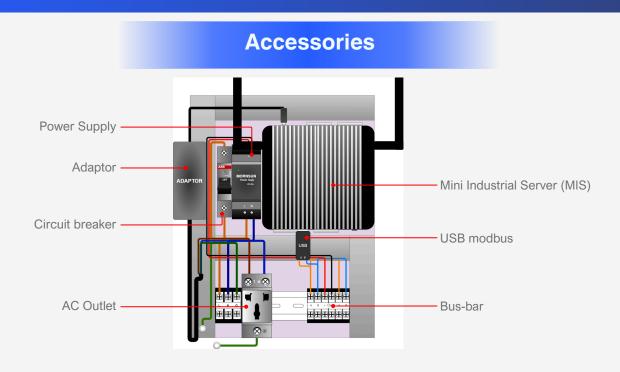
RS232/RS485

GPIO 10P

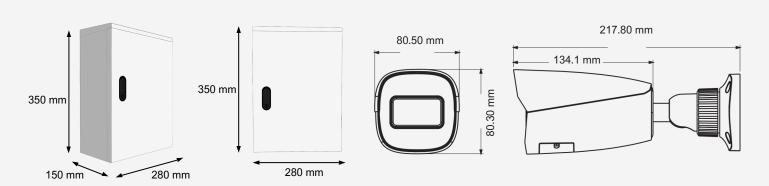
8x USB



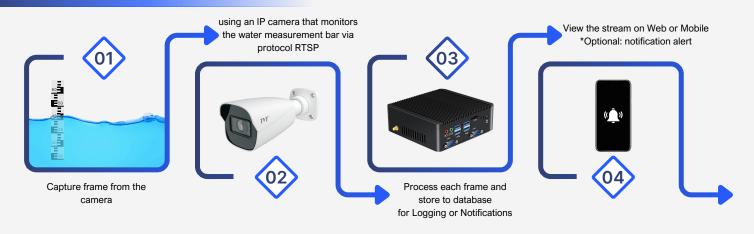
# **Overview**



#### **Dimension**



## **Process diagram**





SPECIFICATIONS: CAMERA			
Image Sensor	1 / 2.8" CMOS		
Image Size	1920 × 1080		
Electronic Shutter	1 s ~ 1 / 100000 s		
Iris Type	Fixed Iris		
Min. Illumination	0.0035 lux@F1.2,AGC ON; 0 lux with IR 0.009 lux@F1.6,AGC ON; 0 lux with IR		
Lens	2.8 mm @F1.6, H.FoV: 103.7°, V.FoV:55.1°, D.FoV:124° 3.6 mm @F1.6, H.FoV: 86.1°, V.FoV:43.7°, D.FoV:103°	2.8~12mm@F1.4, H.FoV: 93.5-31.9°; V. FoV: 49-18.4°; D. FoV: 112-35°	
Focus	Fixed	Manual	
Lens Mount	M12	Ø14	
BLC	Yes		
HLC	Yes		
Digital NR	3D DNR		
Angle Adjustment	Pan: 0°~360°; Tilt:0°~90°; Rotation: 0°~360°	Pan: 0°~360°; Tilt:0°~90°; Rotation: 0°~360°	
Image			
Video Compression	H.265 / H.264		
H.265 Compression Standard	Main Profile@Leve4.1 High Tier		
Resolution	1080P ( 1920 × 1080 ), 720P ( 1280 × 720 ), D1, CII	=, 480 × 240	
Main Stream	60Hz: 1080P( 1 ~ 30fps ) / 720P( 1 ~ 30fps ) 50Hz: 1080P( 1 ~ 25fps ) / 720P( 1 ~ 25fps )		
Sub Stream	60Hz : D1/CIF (1~30fps); 50HZ: D1/CIF (1~25fps)		
Third Stream	60Hz : D1/CIF/480×240 (1~30fps); 50HZ: D1/CIF/480×240 (1~25fps)		
Audio Compression	G711A / U		
ROI	Each ROI to be configured separately		
Interfaces			
Network	RJ 45		
Audio	1CH audio input		
Reset	Yes		

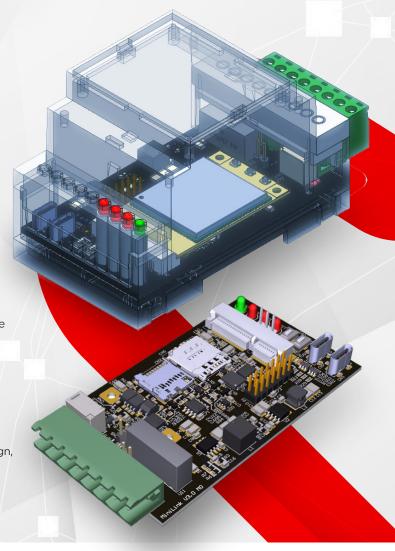


Funcions	
Remote Monitoring	Web browsing
Online Connection	Support simultaneous monitoring for up to 3 users; Support multi-stream real time transmission
Remote Monitoring	Web browsing
Network Protocol	RTSP
Storage	Network remote storage
Smart Alarm	Motion detection
Ingress Protection	Network remote storage
Storage	IP 67
Power Supply	DC12V / PoE
Power Consumption	< 7W
Operating Environment	- 30 °C ~ 60 °C (-22 °F~140°F) Humidity: less than 95 % (non condensing)
Dimensions ( mm )	217.8 × 80.5 × 80.3
Weight ( net )	Approx. 0.65KG
Certificate	CE, FCC
Environmental Protection	Complies with Directive EU RoHS, WEEE(2012/19/EU), directive 94/62/EC and REACH(EC1907/2006)
Mounted	Wall-mounted/Desktop
Chassis Material	Aluminum alloy
Operating Temperature	- 20°C - 60°C
Storage Temperature	-30°C - 70°C (15°C - 35°C recommended)
Relative Humidity	10%~90% @30°C,Relative humidity, No condensation
Dimension	136 x 126 x 46 mm
Bluetooth	Bluetooth 4.0
Case	Steel
IoT size box	H: 350 x W: 280 x D: 150 mm
Weight	5 kg

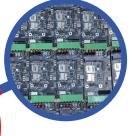
# MiniLink IIoT Gateway version 3.0

In the past, industrial agriculture, smart greenhouses or various smart projects use the Programmable Logic Controller (PLC) as the central controlling unit to manage the operation of machines and electromechanically processes. For example, SCADA systems are designed to collect the information from various sensors and devices, monitor the status of systems and processes, and analyze real-time data using OPC server to establish an interface between SCADA and PLC. This system works very well. It is a stable and reliable. However, Remote Video Surveillance for industrial SCADA requires a high investment and complex maintenance which requiring specialists to develop the system.

The advent of IoT and the Cloud are a trend that has quickly gained attention because users can access the system remotely via a smartphone or a web application. Moreover, users can export data to analyze behavioral trends (data analytics) and set up notifications on a mobile app or a social media. The dashboard has a beautiful design, easy to implement and very low development cost. For these reasons, there are many applications of IoT for industrial agriculture, smart greenhouses or various smart projects





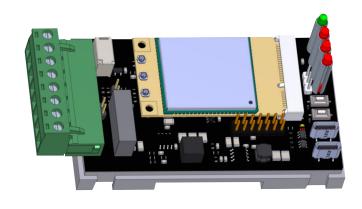


However, the applications of IoT for industrial agriculture, smart greenhouses or various smart projects initially had many obstacles because they were not designed with a serial communication system such as RS485 to interface between other devices. Communication with external devices has few options and not compatible with 24Vdc power supply systems. For these issues, SaiJai-Tech has developed a controller with a built-in communication unit called "MiniLink IIoT Gateway."

# What is MiniLink IIoT Gateway?

MiniLink is an affordable IIoT gateway node that has an ability to connect and control the operation network and has a built-in communication module. Version 3.0 model designs with ARM Cortex-M 32-bit RISC ARM processor cores. It supports Arduino IDE, MPLAB X IDE, Atmel Studio 7 IDE and CircuitPython.

The MiniLink IIoT Gateway comes with mPCIE / SD card / SIM card slot and CryptoAuthentcation chip. There are two interface ports RS485 and RS232 with isolation port on board. The case is a Din-rail mount box with LED indicators. A compact antenna is included in the box. The antenna connector can be removed for convenient to connect to sensors and power supplies.

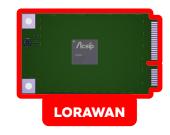




MCU	ARM Cortex-M 32-bit RISC ARM processor cores.
Interface port	RS485 or RS232 isolation with auto - direction (so tware mode selection). RS485 or I2C with auto-direction (so tware mode selection). External UART (Serial2).
Mini PCIe support (software mode selection)	QUECTEL EC21 / EC25 Series SIMCOM 7600 Series NEOWAY N58 Series SAIJAI LoRaWAN SAIJAI NB-IoT
Crypto Authentication chip	Microchip ATECC608A
SD card slot	Micro SD card
Crypto Authentication chip	Microchip ATECC608A
SD card slot	Micro SD card
SIM card slot	Plastic sim / eSIM
USB type C port	Direct to Mini PCIe Program upload
On board swtich	Reset switch User swtich
Indicator lamp	LED power on LED built-in LED user program LED WWAN status
Power supply	12/24 Vdc
Working temperature and humidity range	temperature: -30°C~+80°C, Humidity < 95%
Plastic case	Din-rail mount box

# **Mini PCIe card support**









# Mini Industrial Server (MIS)

## By SaiJai Tech

The Mini Industrial Server (MIS) is a cutting-edge computing solution that combines high performance with low power consumption. Designed to the industrial internet of things (IIoT) in data computing, remote monitoring, and seamless integration of hardware and software technologies, the MIS is the perfect choice for environments with limited space. Its compact form factor and multiple I/O options make it an ideal computing solution for tight spaces.

#### **Key Features**

- 1. Maintenance-friendly: The MIS operates without fans, eliminating the need for regular maintenance and significantly reducing maintenance costs. With a fanless design, it minimizes downtime and ensures smooth, uninterrupted operation.
- Sealed for robustness: Built to withstand harsh environments, the MIS is sealed to resist dust, debris, and fluids.
   This rugged construction ensures reliable performance even in challenging conditions, making it suitable for a wide range of industrial applications.
- 3. Whisper-quiet operation: Unlike traditional servers that rely on noisy fans for cooling, the MIS utilizes a passive cooling system. This design choice results in a noiseless operation, creating a quieter work environment without compromising performance.

The Mini Industrial Server offers unparalleled reliability, efficiency, and versatility in a compact package. Whether you need a powerful computing solution for data processing or a robust system for remote monitoring, the MIS is your trusted partner for seamless operations in demanding industrial environments.





# How to set up COM1 RS232/485 Jumper Pins Model 3 1 1-2 (Default) RS232 4 2 3-4 RS485

#### **Features**



















2X GbF I AN GPIO 10P

COM 3: RS232 COM 4: RS232

RS232/RS485

8x USB

DDR4 RAM

M.2 SSD

2x HDMI 1x LVDS

mini PCI-E expansion

12V-19V wide volatge











InfluxDB v2.7 + Node-Red v3.0.2 (JavaScript) + Grafana v9.5.3



CPU	Intel Celeron J4125 (4 core 5 threads, 4M Cache, 2.00GHz, up to 2.70GHz, TDP: 10W)
Graphics Card	In-tel UHD Graphics 600
Memory(RAM)	8GB DDR4
Storage	128GB M2 NGFF SSD
Dual Display	Support 4K @60Hz 2 x H-DMI on external interface + 1 xLVDS on internal
Support System	Linux Ubuntu
External Interface	1 DC-IN 2 x HDMI 5 x USB3.2 GEN1(5Gbps)+ 3 x USB2.0 2 x LAN 1 x MIC-IN + 1 xHP-OUT 1 x REC (Ghost button (one-key system restore) 1 x RST (Reset button & CLR_CMOS button) 2 x LED 1 x HDD LED(Red), 1 x WIFI & 4G module states(Green) 1 x PWR BT
Internal Connectors	1 x Debug 1 x LVDS 1 x SATA PWR + 1 x SATA 1 x COM_CONN (4* COM232, support RS232 / RS485 set on COM1) 1 x JFP (auto power on set up jumper) 1 x GPIO 1 x AUDIO + 1 x Speaker 1 x F USB2.0
Audio	Realtek ALC662/ALC887 ; Integrated power amplifier NS4251 3W@4Q max
Ethernet port	2 x Realtek Gb Ethernet (RTL8111H/8111G)
WIFI	Half-Height Mini PCle, Support WiFi
Other	Wake UP on LAN, S5 RTC Wake Settings, PXE Boot, Restore AC power loss(Auto Power On)
Power Consumption	DC 12V-3A/ 36W or DC 12V-5A/ 60W (AC TO DC, 100~ 240V)
Mounted	Wall-mounted/Desktop
Chassis Material	Aluminum alloy
Operating Temperature	-20°C - 60°C
Storage Temperature	-30°C - 70°C (15°C - 35°C recommended)
Relative Humidity	10%~90% @30°C,Relative humidity, No condensation
Dimension	136 x 126 x 46 mm

# MiniLink DTU (S93-DTU)



#### MiniLink DTU (S93-DTU)

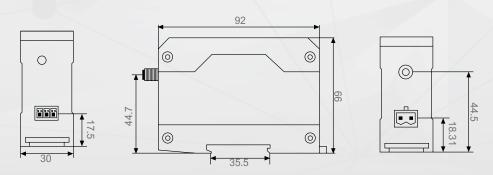
Requires no coding or configuration and is ready for immediate use. It communicates data from the RS485 port and transmits signals via LoRa PtP, with a transmission range of up to 500 m.

The working principle of the LoRa PtP bridge is to replace cable signals with wireless communication. It also supports the Modbus RTU protocol, reducing the need for cable installations and significantly lowering costs. The device is easy to install and can be mounted directly on a DIN rail. With a data transmission range of over 500 m, even when the EIRP is set to just 14 dBm and using an antenna with a gain of only 1.5 dBi.

## **Key Features**

- ✓ LoRa AS923 module
- RS485 port with Modbus RTU protocol
- External antenna connector, Female SMA
- Can be mounted on a DIN rail

- Supports long-distance communication via LoRa bridge
- Made from heat-resistant, fire-retardant plastic



Dimensions of MiniLink DTU (Unit: mm)





Model: S93-DTU

Frequency: 920 - 925 MHz

Transmit Power: 14 dBm

Communication port: RS485, Modbus RTU

Power Supply: DC 12V - 24V

Antenna connector: Female SMA

Operating temperature: -40°C ~ 85°C

Dimension: 30 x 66 x 92 mm

### **Built in Watchdog**

A built-in mechanism for monitoring the operational status of the device. In case of a power failure, the device resumes normal operation immediately once power is restored. The device is stable and designed to meet industrial-grade standards.



**POWER CONNECTOR** 



ANTENNA CONNECTOR



RS485 PORT



**RAIL BUCKET** 









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