

# WTU

## Wireless Transmission Unit



**WTU-P**



**WTU-S**



**LONG-DISTANCE WIRELESS**  
Seamlessly links Modbus master and slave devices



**USER-FRIENDLY CONFIGURATION**  
Guided setup via S4C-WTU mobile app



**SECURE DATA**  
Encrypted communication for safety



**PLUG & PLAY**  
Quick setup with SUTO iTEC devices



**FLEXIBLE USE**  
Stationary and portable versions available



**COST-EFFICIENT**  
One-time investment, no recurring fees



# Benefits

- ✓ **Effortless setup:** Most settings are pre-configured, allowing a fast and easy start with SUTO devices.
- ✓ **Wireless flexibility:** Perfect for areas where traditional cabling is difficult or not possible.
- ✓ **Mobile-friendly operation:** Configure your system easily using the intuitive S4C-WTU mobile app.
- ✓ **Quick connections:** Connect to SUTO devices in no time using various standard connectors.
- ✓ **Extended range:** Use WTU as a repeater to cover larger areas and improve connectivity.
- ✓ **Easy scalability:** Expand your system anytime by adding sensors without wiring constraints.
- ✓ **Cost-effective installation:** Eliminate complex cabling and reduce setup costs across your facility.

## Wireless Communication Made Simple with the WTU

The Wireless Transmission Unit (WTU) is a state-of-the-art wireless data transmission solution that operates on the ISM band.

Serving as the communication bridge for your compressed air measurement system, it enables seamless long-distance communication between Modbus master and slave devices.

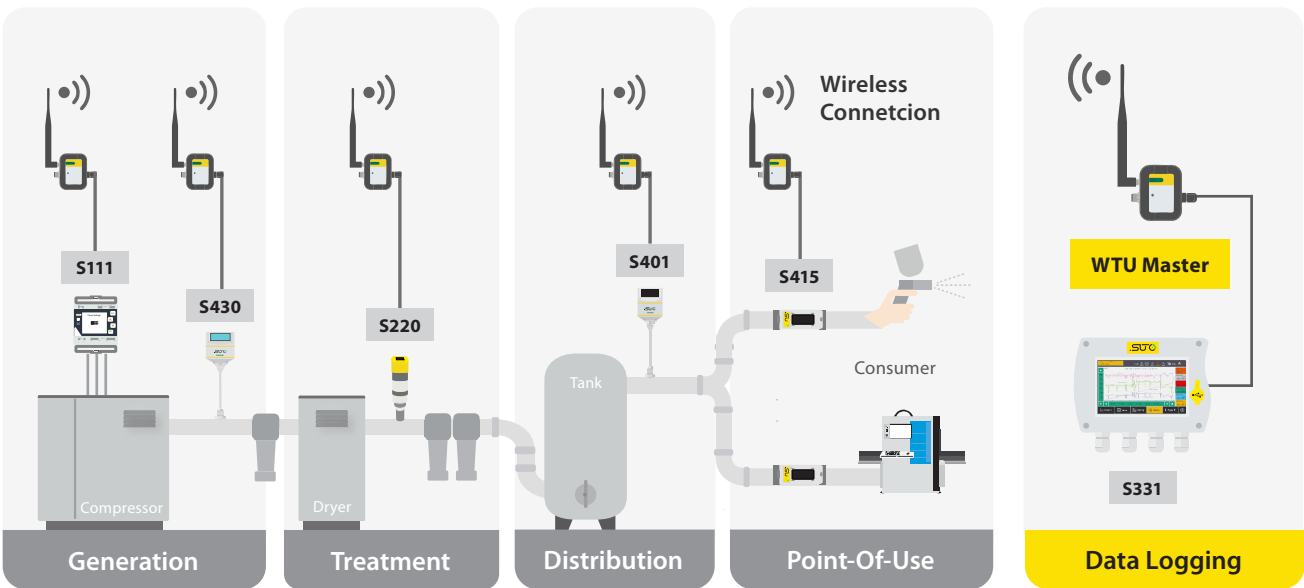
The WTU is equipped with advanced encryption technology to ensure the security of your data during transmission. Connectors and cables are included for easy and reliable connections to SUTO iTEC data loggers and sensors over extended distances.

## Security You Can Trust

At the heart of our wireless communication solution lies a commitment to safeguarding your data. We utilize AES 128-bit encryption technology, a robust global standard for securing sensitive information.

This advanced encryption technology ensures that all data transmitted between sensors and the gateway remains confidential and protected from unauthorized access. With our solution, you can rest assured that your data is secure.

## Seamless Integration with SUTO iTEC Ecosystem



## Quick Connection

Select and use the specified connectors to easily connect to different SUTO iTEC devices.

There are three connector options: M12, ODU and open wires.

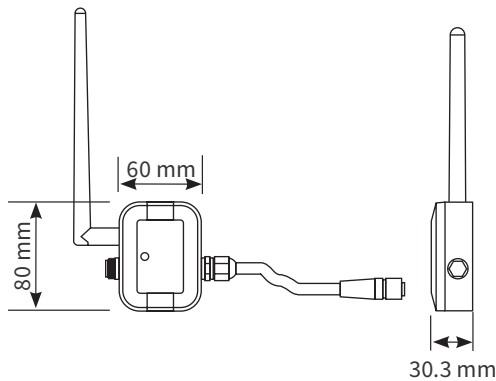


## Typical Applications

- ✓ Wireless monitoring of sensors in wide or distributed compressed air networks where **cabling is impractical** or cost-prohibitive
- ✓ Connecting sensors in **hard-to-reach installations**
- ✓ Bridging **communication gaps** in multi-building industrial plants
- ✓ Upgrading existing systems with **wireless connectivity** to minimize installation time and avoid production interruptions

### WTU-S

For stationary installation

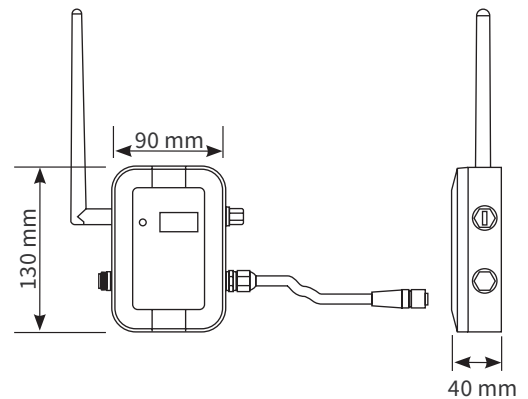


### WTU-PM

For portable mater devices

### WTU-P

Portable version with battery



## Installation Options

The WTU-S stationary installation version can be installed on the walls, pipes and shafts of the sensors shown in the following picture. The WTU-P portable version and WTU-PM do not require installation.

Wall mounting



Pipe mounting



Sensor shaft mounting



The stainless steel cable tie supports a maximum pipe size of DN350. For larger pipe size, you need to purchase longer stainless steel cable tie by yourself.

## Applied to Various Wireless Connection Solutions

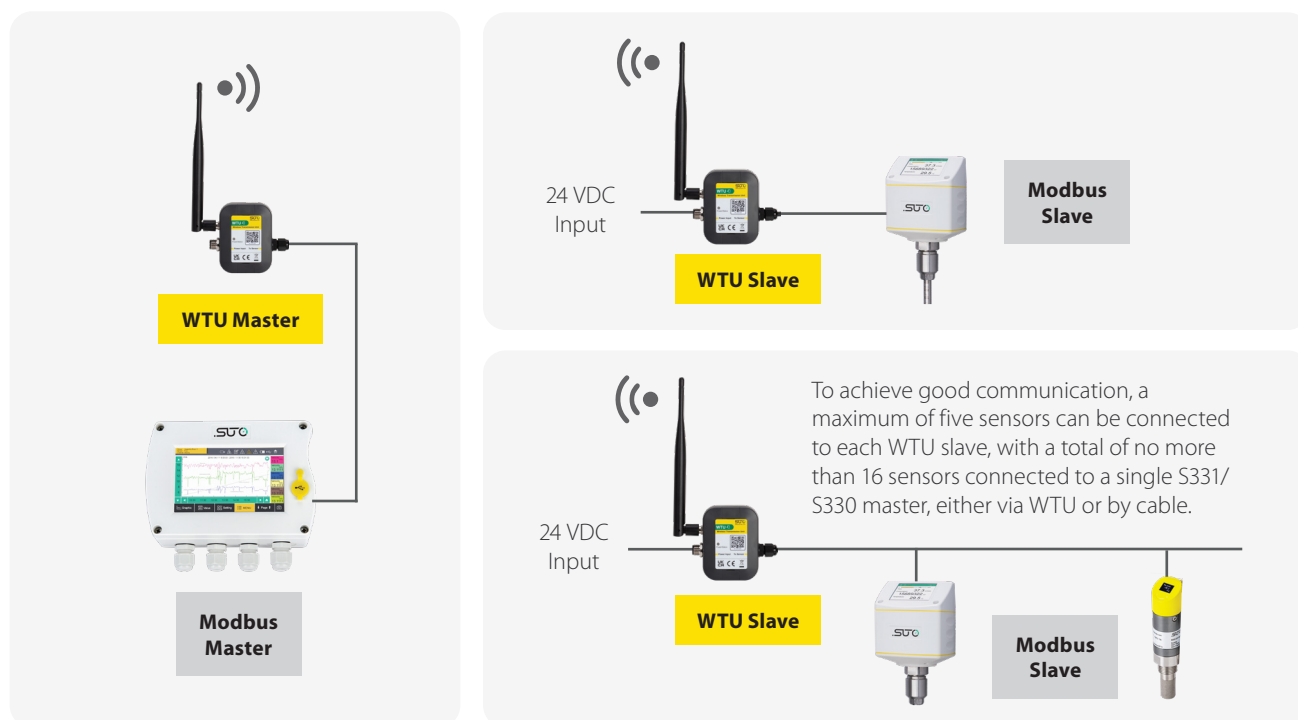
The WTU connected to a Modbus master is referred to as the WTU Master, while the unit connected to a Modbus slave is known as the WTU Slave. A WTU Slave can connect to one or more SUTO sensors independently.

Please specify whether you need a WTU Master or WTU Slave when placing your order by selecting the item and options from the order table. We will perform the necessary pre-set configurations before delivery, simplifying your on-site setup process.

1

### One Modbus master communicates with multiple slaves

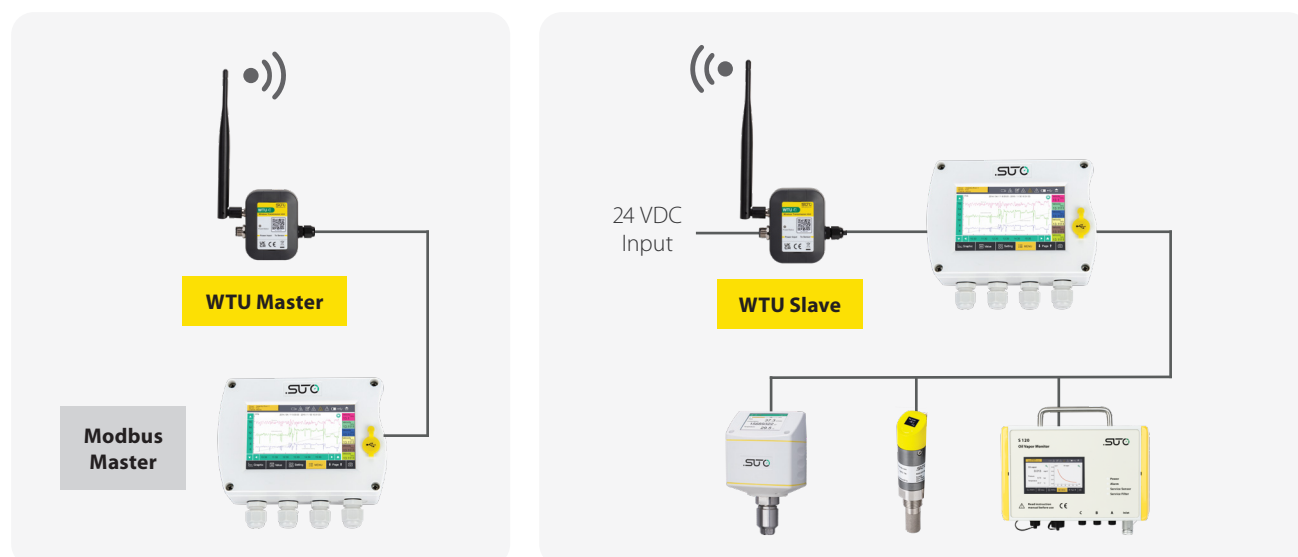
A typical application is a WTU master communicating with multiple WTU slaves over long distances.



2

### One Modbus master communicates with multiple slaves with multiple sensors

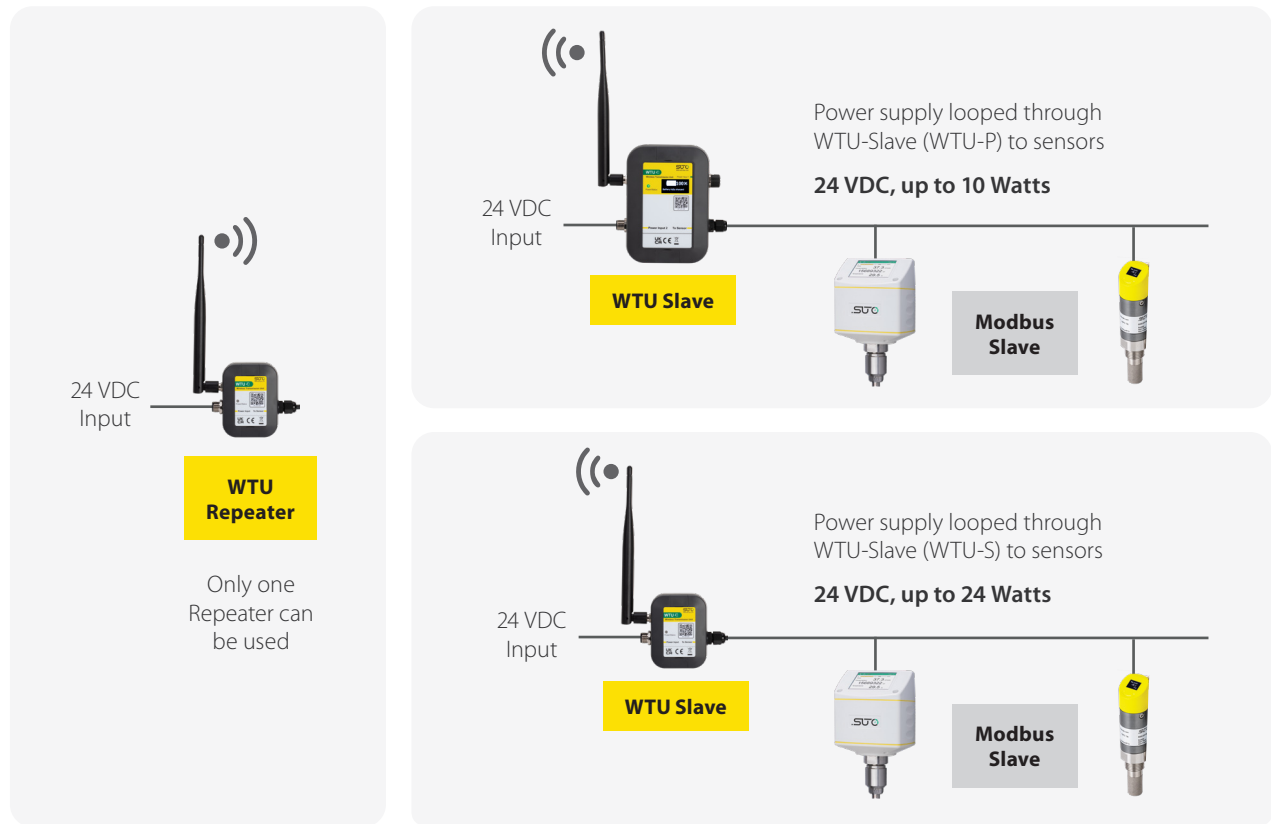
The WTU can replace the traditional wired connection between a master and a gateway effectively, thus eliminating the need for cables.



3

## One Modbus master communicates with multiple slaves via a WTU repeater

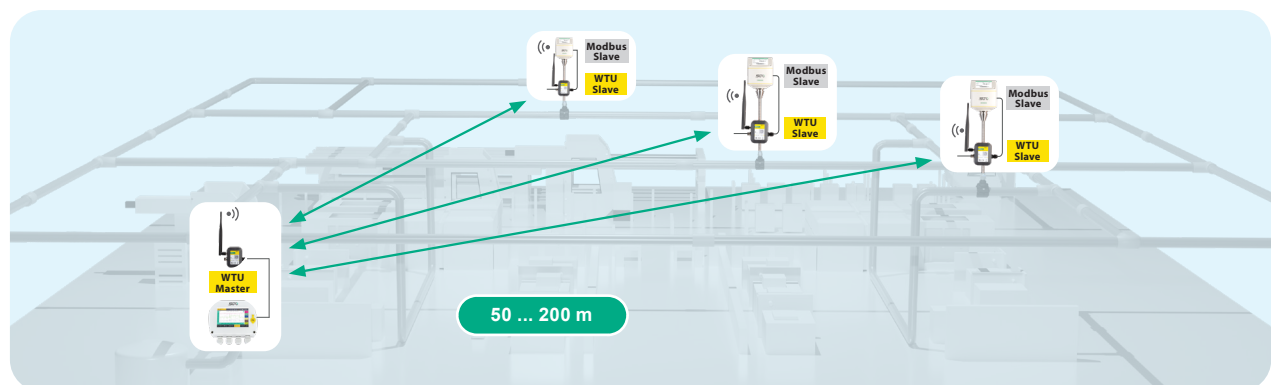
Adding a WTU Repeater can help to address communication distance issues or excessive background noise on site effectively.



## Wireless Communication Distance

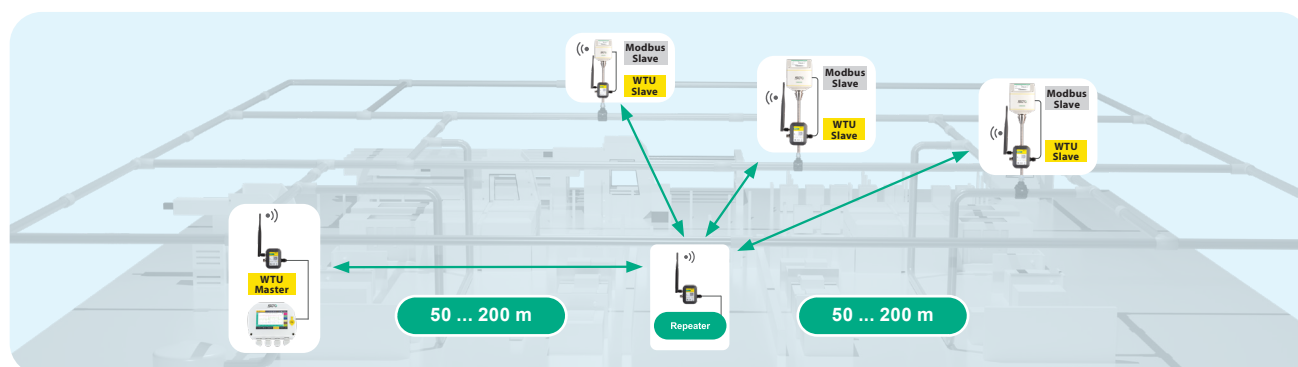
### 1) Wireless communication distance in open field:

These theoretical values are based on extensive field tests conducted in unobstructed outdoor conditions. These figures are intended as rough guidelines only and do not guarantee performance. Real-world factors such as terrain, vegetation or nearby structures can reduce the range.



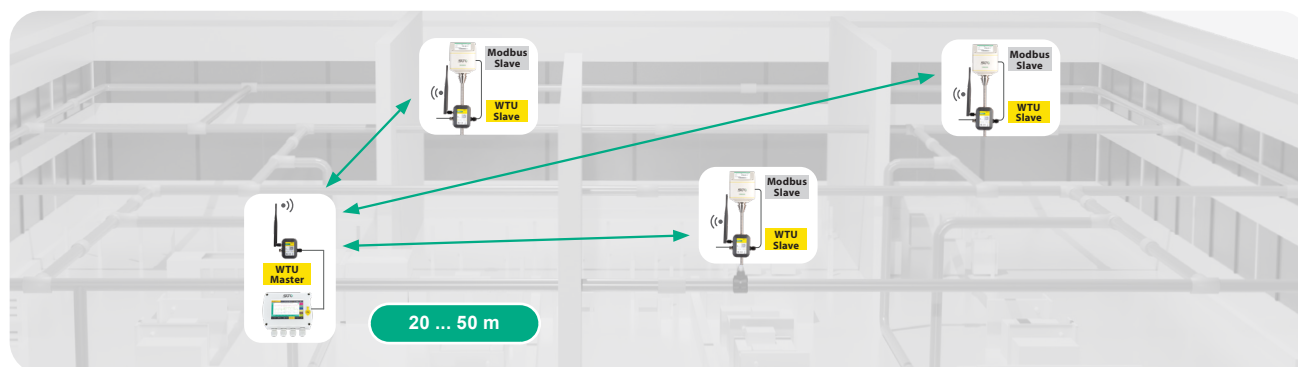
## 2) Wireless communication distance in an open field with a repeater:

This applies when using a repeater to extend coverage in open terrain. The module can typically communicate with the repeater at a distance of 50–200 m and then a further 50–200 m beyond that. These values are derived from controlled field trials and should be viewed as indicative; actual results will vary depending on site layout, antenna height and local interference.



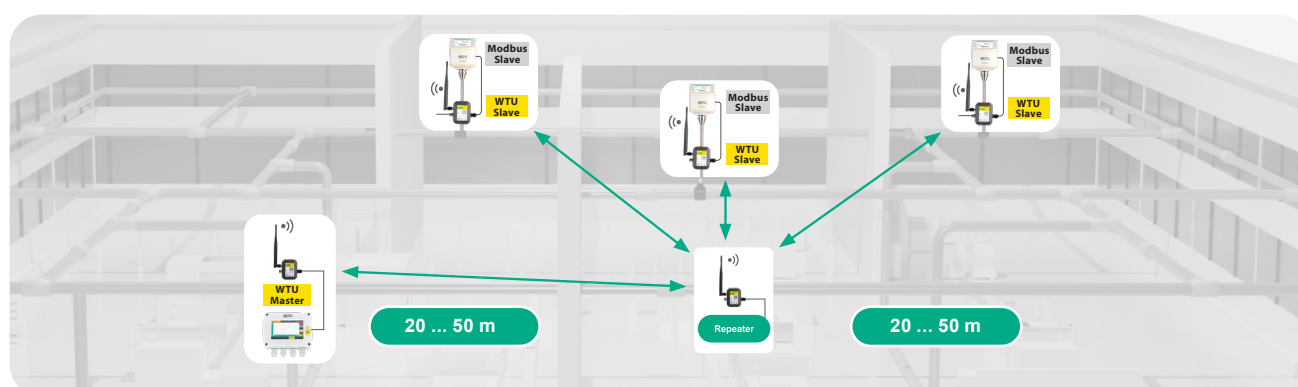
## 3) Wireless communication distance in an industrial environment:

Estimated range in an industrial setting with machinery, metal structures and walls. Field testing shows that reliable links can be established up to 20–50 m away, but heavy equipment, dense shelving or reinforced concrete can significantly impact signal strength. Consider this a planning reference rather than a guaranteed specification.



## 4) Wireless communication distance in an industrial environment with repeater:

With a repeater in a factory or plant, you can expect a range of roughly 20–50 m from the master to the repeater, and a further 20–50 m from the repeater to the slave. These figures are based on practical trials under typical industrial conditions, but will fluctuate depending on the density of obstacles, the building materials used, and the presence of electromagnetic noise sources.



### Note on transmission power and real-world conditions:

In accordance with the applicable maximum Tx power regulations, the actual range may vary depending on the radio band in which the WTU is operating. For optimal connections, position the WTUs within a clear line of sight of each other, if possible. The specified ranges are guidelines only; real environmental conditions (e.g. terrain, building materials, interference) can significantly reduce the distance.

## Technical Data

### General data

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Frequency Wireless Communication | 470-510 MHz (CN470)<br>863-870 MHz (EU868)<br>915-928 MHz (US915)              |
| Housing material                 | Plastic casing                                                                 |
| Protection class                 | IP65                                                                           |
| LED indicator                    | 1 x LED                                                                        |
| Operating temperature            | 0 ~ 50 °C                                                                      |
| Humidity                         | <90%RH, no condensation                                                        |
| Dimensions                       | <b>WTU-S &amp; WTU-PM:</b> 80 x 60 x 30.3 mm<br><b>WTU-P:</b> 130 x 90 x 40 mm |
| Weight                           | <b>WTU-S &amp; WTU-PM:</b> 120 g<br><b>WTU-P:</b> 470 g                        |

### Electrical Data

|                   |                                                                                   |
|-------------------|-----------------------------------------------------------------------------------|
| Power input       | <b>WTU-S &amp; WTU-PM:</b> 18 ... 28 VDC/0.5 A<br><b>WTU-P:</b> 18 ... 28 VDC/1 A |
| Power output      | <b>WTU-S &amp; WTU-PM:</b> 18 ... 28 VDC/0.5 A<br><b>WTU-P:</b> 24 VDC/0.5 A      |
| Power consumption | <b>WTU-S&amp;WTU-PM:</b> <= 0.3 W<br><b>WTU-P:</b> <= 0.5 W                       |
| Battery           | <b>WTU-P:</b> Lithium ion battery, 3500 mAh                                       |

### Interface

|                       |                                                                                                                                                  |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| LED                   | <b>Constant green:</b> Power on<br><b>Blinking green:</b> Receiving data<br><b>Constant red:</b> Error<br><b>Blinking red:</b> Transmitting data |
| Status screen         | WTU-P: Battery level display                                                                                                                     |
| Connector             | RS485 (Modbus/RTU)                                                                                                                               |
| Transmission method   | Transparent data transmission                                                                                                                    |
| Encryption technology | AES 128-bit encryption for secure data transmission                                                                                              |

# Ordering

Please use the following table to assist in placing your order with our sales staff.

## WTU (Wireless Transmission Unit)

| Order No. | Description                                                                                                                                                                                      |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A554 0136 | WTU-S, Wireless Transmission Unit for stationary installation, Slave (default) / Repeater with 0.5 m M12 connection cable, M12 connector for power supply, all installation accessories included |
| A554 0137 | WTU-S, Wireless Transmission Unit for stationary installation, Master with 1 m open ends, M12 connector for power supply, all installation accessories included                                  |
| A554 0138 | WTU-PM, Wireless Transmission Unit for portable master devices, Master with 0.5 m ODU connection cable to S551                                                                                   |

### ISM band selection according to below country/region list (for WTU-S & WTU-PM)

|       |                         |
|-------|-------------------------|
| A1701 | CN470 for WTU-S, WTU-PM |
| A1702 | EU868 for WTU-S, WTU-PM |
| A1703 | US915 for WTU-S, WTU-PM |

## WTU-P (Wireless Transmission Unit, Portable Version)

| Order No. | Description                                                                                                                                                                                            |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A554 0139 | WTU-P, Wireless Transmission Unit, portable version with battery, Slave(default) / Repeater with 0.5 m M12 connection cable, M12 connector for charger, USB-C connector for charger, including charger |

### ISM band selection according to below country/region list (for WTU-P)

|       |                 |
|-------|-----------------|
| A1704 | CN470 for WTU-P |
| A1705 | EU868 for WTU-P |
| A1706 | US915 for WTU-P |

## Accessories

| Order No. | Description                                                                   |
|-----------|-------------------------------------------------------------------------------|
| A554 3310 | RS-485 splitter T, with 3 x M12 connectors to connect RS-485 devices to a bus |

## Country/region list and Their ISM Band

| ISM Band | Country/Region                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CN470    | 22 China, 52 Kazakhstan, 53 Kuwait, 93 Sri Lanka, 106 Uzbekistan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| EU868    | 1 Albania, 3 Andorra, 6 Austria, 9 Bahrain, 10 Bangladesh, 12 Belgium, 15 Bosnia and Herzegovina, 18 Bulgaria, 19 Cambodia, 25 Croatia, 27 Cyprus, 28 Czech Republic, 29 Denmark, 32 Egypt, 33 Estonia, 34 Finland, 35 France, 36 Germany, 37 Greece, 40 Hong Kong, China, 41 Hungary, 42 Iceland, 43 India, 45 Iran, 46 Ireland, 48 Italy, 51 Jordan, 54 Laos, 55 Latvia, 56 Lebanon, 57 Liechtenstein, 58 Lithuania, 59 Luxembourg, 60 Macedonia, 62 Malta, 64 Moldova, 65 Montenegro, 66 Morocco, 67 Netherlands, 68 New Zealand, 70 Nigeria, 71 Norway, 72 Oman, 73 Pakistan, 78 Philippines, 79 Poland, 80 Portugal, 81 Qatar, 82 Romania, 85 Saudi Arabia, 86 Serbia, 87 Singapore, 88 Slovak Republic, 89 Slovenia, 90 South Africa, 92 Spain, 94 Sweden, 95 Switzerland, 98 Tunisia, 99 Turkey, 102 United Arab Emirates, 103 United Kingdom, 108 Vietnam |
| US915    | 2 Algeria, 5 Argentina, 7 Australia, 16 Brazil, 20 Canada, 21 Chile, 23 Colombia, 24 Costa Rica, 26 Cuba, 30 Dominican Republic, 31 Ecuador, 38 Guatemala, 39 Honduras, 44 Indonesia, 47 Israel, 49 Jamaica, 50 Japan, 61 Malaysia, 63 Mexico, 69 Nicaragua, 74 Panama, 75 Paraguay, 76 Peru, 84 Salvador, 91 South Korea, 96 Taiwan, China, 97 Thailand, 104 United States, 105 Uruguay, 107 Venezuela                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



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