ICP Electronics
Australia Pty Ltd
TEL: 02 9457 6011
sales@icp-australia.com.au
www.icp-australia.com.au
Proudly Australian-Owned Since 1999

# DLW-1000 Series

Mini weather station can measure weather information and air quality

## Features

- Real-time measurement of outdoor weather information and hazardous gas decetion.
- Molding in one, can be matched with straight/ horizontal rod body, easy to install.
- Provide RS-485 and Ethernet (PoE) communication interfaces
- Support Modbus RTU/TCP, MQTT communication protocols
- Can be integrated with the WISE controller to set alarm notifications to keep you informed
- Combining with the ExoWISE, simple logic control settings

## Introduction

**Mini Automated Surface Observation Area:**

The minimized sensors of gas/powder pollution are placed on PCB to help monitor the air quality index to identify the source of the contamination.

**Positive and Negative Pressure Ventilation System:**

Active ventilation produces the pressure difference between the inside and outside of the module, which causes airflow, creates turbulence, mixes the air evenly, and makes the data precise.

**IP Protection Rating:**

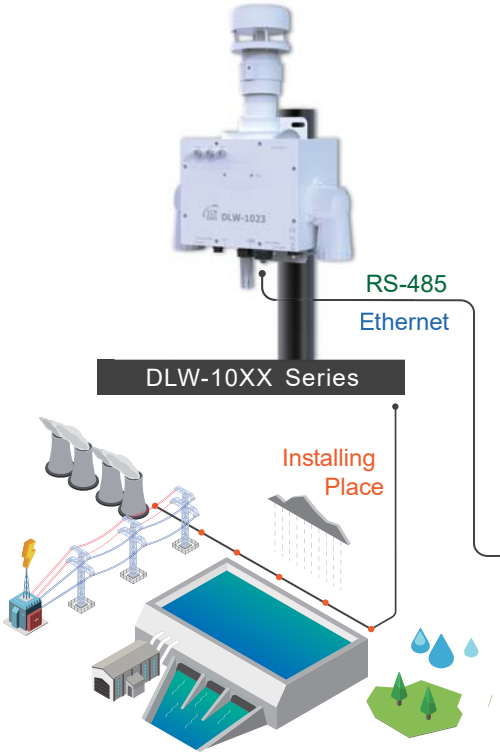
The system has an IP54 rating for the fan intake and output, which can withstand water ingress from a low angle during a storm. There is also a waterproof connector for RS-485 and Ethernet (supports PoE), to ensure the device will work in extreme conditions.

**Replaceable Filter Patch:**

The intake and output filters are replaceable. The 45ppi filter sponge prevents dust particles and cotton wool from entering, thereby extending the life of the gas sensor chips. It is only necessary to replace the filter patch by yourself during regular maintenance, which significantly reduces the repair times.

## Applications

### *Outdoor Weather Information Visualization Solution*



▲ Visualization Dashboard for Intelligent Monitoring

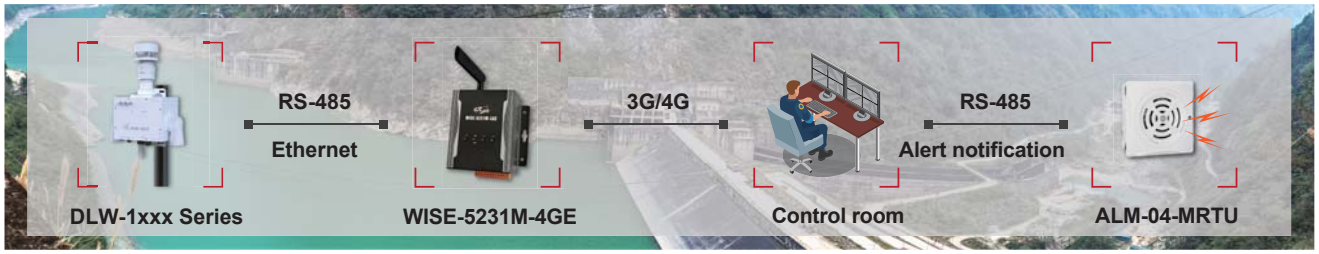
Edge Controller
WISE-5231M-4GE

## • Combination of the IoT & agricultural technology

The minimized sensors of gas/powder pollution are placed on PCB to help monitor the air quality index to identify the source of the  Smart greenhouses maintain the best growing conditions for plants through accurate data collection and a greenhouse temperature control system combined with an IoT system that automatically controls light, temperature, watering and $CO_2$ levels. In addition to providing gas and weather data for the green house IoT system , the DLW-1000 can be connected with PM-3133, a smart power meter that collects energy data, analyzes greenhouse energy consumption, and sends the data back to the control center via WISE-5231M-4GE, which realizes the combination between the IoT and agricultural technology.

## • Data Management Solution for Multiple Stations

In India, since many tributaries of the Indus River Basin are separated by mountains, combined with a large territory of the country and poor communication infrastructure in some areas, domestic and industrial water use directly rely on pumping stations. Taking pumping stations in the drainage basin as a basis, ICP DAS uses WISE-5231M-4GE, equipped with edge computing and remote maintenance functions, to collect information on water quality, flow r ate, water level, and valve monitoring status in the pumping stations. Data can be sent back to the control center in Mumbai through the 4G, and users can simultaneously and remotely monitor and maintain their equipment. Besides this, adding a DLW-1000 to pumping stations enables users to notice climate changes in advance; coupled with the real-time data, the controlling center can evacuate the village before a heavy rainfall.




## • Air quality and weather data collecting solution for marine affairs and ports

As marine transportation plays a critical role in international trade, marine affairs and ports have become indicators of productivity. For example, the Greenport Impact Assessment considers the air quality of a port in real-time. The monitored parameters are exhaust emissions from ships, machinery, and vehicles fueled by diesel or heavy fuel oil. The industrial DLW-1000 from ICP DAS can measure wind speed, wind direction, precipitation, illuminance, and collect data on $H_2S$, NOX, and PM2.5. We can implement air pollution reduction policies in commercial ports to improve air quality by combining weather data and A IS in adjacent seas surrounding Taiwan.

## • Large scale farming

The DLW-1000 can collect data on temperature, humidity, precipitation, illumination, gas, wind direction and speed. The collected data helps to analyze the problem of planting, seedling, irrigation, fertilization of plants, protection from pests and diseases, and also helps to set up the traceability system to improve the quality of the crop. Meanwhile, the edge controller WISE-5231M-4GE, combined with the data acquisition monitoring module M-7000, can collect data from environmental sensors in remote areas where communication is poor. The combination of WISE-5231M-4GE and M-7000 integrates collection, transformation, and management of environmental data to demonstrate the convenience that smart farming brings.

## • Industrial exhaust emissions monitoring

As the global trend of ESG becomes more and more popular, t o find a balance between energy and environmental protection, ICP DAS suggests strict control of exhaust emissions, together with the measurement and assessment of air quality. The DLW-1000 can be easily installed and used anywhere, for example, in smoke stacks with a height of 50 or 100m, as well as in storage tanks for raw materials in the petrochemical industry. In addition to temperature, humidity, pressure, illuminance, precipitation, wind direction and speed, the DLW-1000 also measures PM1/2.5/10, CO, $CO_2$ ,$O_2$ , $NH_3$ , $H_2S$, TVOC, HCHO and more. Combining the DL W-1000 with the edge controller WISE-5231M-4GE, you can perform logic control, data collection and transmission, device management, and problem reporting wirelessly.

## System Specifications

| Model | | DLW-10XX/DLW-11XX/DLW-12XX/DLW-13XX | DLW-1000/DLW-1100/DLW-1200/DLW-1300 |
|---|---|---|---|
| **COM Ports** | | | |
| Ports | | 1 x RS-485 | |
| Baud Rate | | 1200 ~ 115200 bps | |
| Protocol | | Modbus RTU | |
| **Ethernet** | | | |
| Ports | | 10/100 Base-TX, 8-Pin RJ-45 x1 | |
| Security | | Password and IP Filter | |
| Protocol | | Modbus TCP and MQTT | |
| **System** | | | |
| Alarm | | Weather Monitoring<br>(Wind Speed, Wind Direction, Pressure, Illuminance, Sea Level, RH/T, Precipitation),<br>Particulates, Gas Monitoring<br>(CO, $CO_2$, HCHO, TVOC, $NH_3$, $H_2S$, $O_2$) | Weather Monitoring<br>(Wind Speed, Wind Direction, Pressure, Illuminance, Sea Level, RH/T, Precipitation) |
| Real Time Clock | | Yes | |
| Data Logger | | Yes | |
| Relay Output | | PhotoMOS Relay, Form A x 4, SPST 100 VDC@1A | |
| **CPU Module** | | | |
| Watchdog Timer | | Yes, Module, Communication (Programmable) | |
| **Power** | | | |
| Powered from Terminal Block | | +12 to +48 VDC | |
| Powered from PoE | | IEEE 802.3af, Class 1 (48 V) | |
| Power Consumption | PoE | 3.33 W Max | 1.10 W Max |
| | Non-PoE | 3.01 W Max | 0.88 W Max |
| **LED Indicators** | | | |
| Status | PWR | Green for normal operation | |
| | Link | Green for the Ethernet-linked | |
| | Alarm | Red for an alarm condition | |
| **Mechanical** | | | |
| Installation | | U-bolt or Wall Mounting | |
| Dimensions (mm) | | 288 x 122 x 389 (W x L x H) | 190 x 134 x 389 (W x L x H) |
| Weight | | 2.45 kg | 2.26 kg |
| Ingress Protection Rating | | IP54 | IP67 |
| **Environment** | | | |
| Operating Temperature | | -20 to +50°C | |
| Storage Temperature | | -30 to +75°C | |
| Humidity | | 10% to 90% RH, Non-condensing | |

# DLW-1 0 X C

**0 :** Wind Speed, Wind Direction, RH/T, Pressure, illuminance, Sea Level

**2 :** PM1/2.5/10+Particle
**3 :** PM1/2.5/10+Particle+CO+$CO_2$
**4 :** $NH_3$
**5 :** $O_2$

**1 :** CO
**2 :** $CO_2$
**3 :** CO+$CO_2$
**4 :** HCHO+TVOC

**5 :** $NH_3$
**6 :** $H_2S$
**7 :** HCHO
**8 :** TVOC

| DLW-10XX Series | Sensor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Weather Monitoring | | | | Particulates | Gas Monitoring | | | | | | | |
| | Wind Speed Wind Direction Temperature Humidity | Pressure Sea Level | Illuminance | Precipitation | PM1 PM2.5 PM10 Particle | CO | $CO_2$ | HCHO | TVOC | $NH_3$ | $H_2S$ | $O_2$ | Mechanical |
| DLW-1000 | | | | - | - | - | - | - | - | - | - | - | A |
| DLW-1001 | | | | - | - | √ | - | - | - | - | - | - | |
| DLW-1002 | | | | - | - | - | √ | - | - | - | - | - | |
| DLW-1003 | | | | - | - | √ | √ | - | - | - | - | - | |
| DLW-1004 | | | | - | - | - | - | √ | √ | - | - | - | |
| DLW-1005 | | | | - | - | - | - | - | - | √ | - | - | |
| DLW-1006 | | | | - | - | - | - | - | - | - | √ | - | |
| DLW-1007 | | | | - | - | - | - | √ | - | - | - | - | |
| DLW-1008 | | | | - | - | - | - | - | √ | - | - | - | |
| DLW-1020 | | | | - | √ | - | - | - | - | - | - | - | |
| DLW-1021 | | | | - | √ | √ | - | - | - | - | - | - | |
| DLW-1022 | | | | - | √ | - | √ | - | - | - | - | - | |
| DLW-1023 | | | | - | √ | √ | √ | - | - | - | - | - | |
| DLW-1024 | | | | - | √ | - | - | √ | √ | - | - | - | |
| DLW-1025 | | | | - | √ | - | - | - | - | √ | - | - | |
| DLW-1026 | | | | - | √ | - | - | - | - | - | √ | - | |
| DLW-1027 | | | | - | √ | - | - | √ | - | - | - | - | |
| DLW-1028 | | | | - | √ | - | - | - | √ | - | - | - | |
| DLW-1034 | | | | - | √ | √ | √ | √ | √ | - | - | - | |
| DLW-1035 | √ | √ | √ | - | √ | √ | √ | - | - | √ | - | - | B |
| DLW-1036 | | | | - | √ | √ | √ | - | - | - | √ | - | |
| DLW-1037 | | | | - | √ | √ | √ | √ | - | - | - | - | |
| DLW-1038 | | | | - | √ | √ | √ | - | √ | - | - | - | |
| DLW-1041 | | | | - | - | √ | - | - | - | √ | - | - | |
| DLW-1042 | | | | - | - | - | √ | - | - | √ | - | - | |
| DLW-1043 | | | | - | - | √ | √ | - | - | √ | - | - | |
| DLW-1044 | | | | - | - | - | - | √ | √ | √ | - | - | |
| DLW-1046 | | | | - | - | - | - | - | - | √ | √ | - | |
| DLW-1047 | | | | - | - | - | - | √ | - | √ | - | - | |
| DLW-1048 | | | | - | - | - | - | - | √ | √ | - | - | |
| DLW-1050 | | | | - | - | - | - | - | - | - | - | √ | |
| DLW-1051 | | | | - | - | √ | - | - | - | - | - | √ | |
| DLW-1052 | | | | - | - | - | √ | - | - | - | - | √ | |
| DLW-1053 | | | | - | - | √ | √ | - | - | - | - | √ | |
| DLW-1054 | | | | - | - | - | - | √ | √ | - | - | √ | |
| DLW-1055 | | | | - | - | - | - | - | - | √ | - | √ | |
| DLW-1056 | | | | - | - | - | - | - | - | - | √ | √ | |
| DLW-1057 | | | | - | - | - | - | √ | - | - | - | √ | |
| DLW-1058 | | | | - | - | - | - | - | √ | - | - | √ | |

# DLW-1 1 X C

**1 :** Wind Speed, Wind Direction, RH/T, Pressure, illuminance, Sea Level, Precipitation

**2 :** PM1/2.5/10+Particle
**3 :** PM1/2.5/10+Particle+CO+$CO_2$
**4 :** $NH_3$
**5 :** $O_2$

**1 :** CO
**2 :** $CO_2$
**3 :** CO+$CO_2$
**4 :** HCHO+TVOC
**5 :** $NH_3$
**6 :** $H_2S$
**7 :** HCHO
**8 :** TVOC

| DLW-11XX Series | Sensor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Weather Monitoring | | | | Particulates | Gas Monitoring | | | | | | | |
| | Wind Speed Wind Direction Temperature Humidity | Pressure Sea Level | Illuminance | Precipitation | PM1 PM2.5 PM10 Particle | CO | $CO_2$ | HCHO | TVOC | $NH_3$ | $H_2S$ | $O_2$ | Mechanical |
| DLW-1100 | | | | | - | - | - | - | - | - | - | - | A |
| DLW-1101 | | | | | - | √ | - | - | - | - | - | - | |
| DLW-1102 | | | | | - | - | √ | - | - | - | - | - | |
| DLW-1103 | | | | | - | √ | √ | - | - | - | - | - | |
| DLW-1104 | | | | | - | - | - | √ | √ | - | - | - | |
| DLW-1105 | | | | | - | - | - | - | - | √ | - | - | |
| DLW-1106 | | | | | - | - | - | - | - | - | √ | - | |
| DLW-1107 | | | | | - | - | - | √ | - | - | - | - | |
| DLW-1108 | | | | | - | - | - | - | √ | - | - | - | |
| DLW-1120 | | | | | √ | - | - | - | - | - | - | - | |
| DLW-1121 | | | | | √ | √ | - | - | - | - | - | - | |
| DLW-1122 | | | | | √ | - | √ | - | - | - | - | - | |
| DLW-1123 | | | | | √ | √ | √ | - | - | - | - | - | |
| DLW-1124 | | | | | √ | - | - | √ | √ | - | - | - | |
| DLW-1125 | | | | | √ | - | - | - | - | √ | - | - | |
| DLW-1126 | | | | | √ | - | - | - | - | - | √ | - | |
| DLW-1127 | | | | | √ | - | - | √ | - | - | - | - | |
| DLW-1128 | | | | | √ | - | - | - | √ | - | - | - | |
| DLW-1134 | | | | | √ | √ | √ | √ | √ | - | - | - | |
| DLW-1135 | √ | √ | √ | √ | √ | √ | √ | - | - | √ | - | - | B |
| DLW-1136 | | | | | √ | √ | √ | - | - | - | √ | - | |
| DLW-1137 | | | | | √ | √ | √ | √ | - | - | - | - | |
| DLW-1138 | | | | | √ | √ | √ | - | √ | - | - | - | |
| DLW-1141 | | | | | - | √ | - | - | - | √ | - | - | |
| DLW-1142 | | | | | - | - | √ | - | - | √ | - | - | |
| DLW-1143 | | | | | - | √ | √ | - | - | √ | - | - | |
| DLW-1144 | | | | | - | - | - | √ | √ | √ | - | - | |
| DLW-1146 | | | | | - | - | - | - | - | √ | √ | - | |
| DLW-1147 | | | | | - | - | - | √ | - | √ | - | - | |
| DLW-1148 | | | | | - | - | - | - | √ | √ | - | - | |
| DLW-1150 | | | | | - | - | - | - | - | - | - | √ | |
| DLW-1151 | | | | | - | √ | - | - | - | - | - | √ | |
| DLW-1152 | | | | | - | - | √ | - | - | - | - | √ | |
| DLW-1153 | | | | | - | √ | √ | - | - | - | - | √ | |
| DLW-1154 | | | | | - | - | - | √ | √ | - | - | √ | |
| DLW-1155 | | | | | - | - | - | - | - | √ | - | √ | |
| DLW-1156 | | | | | - | - | - | - | - | - | √ | √ | |
| DLW-1157 | | | | | - | - | - | √ | - | - | - | √ | |
| DLW-1158 | | | | | - | - | - | - | √ | - | - | √ | |

# DLW-1 2 X C

**2 :** Wind Speed, Wind Direction, RH/T

**2 :** PM1/2.5/10+Particle
**3 :** PM1/2.5/10+Particle+CO+$CO_2$
**4 :** $NH_3$
**5 :** $O_2$

**1 :** CO
**2 :** $CO_2$
**3 :** CO+$CO_2$
**4 :** HCHO+TVOC
**5 :** $NH_3$
**6 :** $H_2S$
**7 :** HCHO
**8 :** TVOC

| DLW-12XX Series | Sensor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Weather Monitoring | | | | Particulates | Gas Monitoring | | | | | | | |
| | Wind Speed Wind Direction Temperature Humidity | Pressure Sea Level | Illuminance | Precipitation | PM1 PM2.5 PM10 Particle | CO | $CO_2$ | HCHO | TVOC | $NH_3$ | $H_2S$ | $O_2$ | Mechanical |
| DLW-1200 | | - | - | - | - | - | - | - | - | - | - | - | C |
| DLW-1201 | | - | - | - | - | √ | - | - | - | - | - | - | D |
| DLW-1202 | | - | - | - | - | - | √ | - | - | - | - | - | |
| DLW-1203 | | - | - | - | - | √ | √ | - | - | - | - | - | |
| DLW-1204 | | - | - | - | - | - | - | √ | √ | - | - | - | |
| DLW-1205 | | - | - | - | - | - | - | - | - | √ | - | - | |
| DLW-1206 | | - | - | - | - | - | - | - | - | - | √ | - | |
| DLW-1207 | | - | - | - | - | - | - | √ | - | - | - | - | |
| DLW-1208 | | - | - | - | - | - | - | - | √ | - | - | - | |
| DLW-1220 | | - | - | - | √ | - | - | - | - | - | - | - | |
| DLW-1221 | | - | - | - | √ | √ | - | - | - | - | - | - | |
| DLW-1222 | | - | - | - | √ | - | √ | - | - | - | - | - | |
| DLW-1223 | | - | - | - | √ | √ | √ | - | - | - | - | - | |
| DLW-1224 | | - | - | - | √ | - | - | √ | √ | - | - | - | |
| DLW-1225 | | - | - | - | √ | - | - | - | - | √ | - | - | |
| DLW-1226 | | - | - | - | √ | - | - | - | - | - | √ | - | |
| DLW-1227 | | - | - | - | √ | - | - | √ | - | - | - | - | |
| DLW-1228 | | - | - | - | √ | - | - | - | √ | - | - | - | |
| DLW-1234 | | - | - | - | √ | √ | √ | √ | √ | - | - | - | |
| DLW-1235 | √ | - | - | - | √ | √ | √ | - | - | √ | - | - | |
| DLW-1236 | | - | - | - | √ | √ | √ | - | - | - | √ | - | |
| DLW-1237 | | - | - | - | √ | √ | √ | √ | - | - | - | - | |
| DLW-1238 | | - | - | - | √ | √ | √ | - | √ | - | - | - | |
| DLW-1241 | | - | - | - | - | √ | - | - | - | √ | - | - | |
| DLW-1242 | | - | - | - | - | - | √ | - | - | √ | - | - | |
| DLW-1243 | | - | - | - | - | √ | √ | - | - | √ | - | - | |
| DLW-1244 | | - | - | - | - | - | - | √ | √ | √ | - | - | |
| DLW-1246 | | - | - | - | - | - | - | - | - | √ | √ | - | |
| DLW-1247 | | - | - | - | - | - | - | √ | - | √ | - | - | |
| DLW-1248 | | - | - | - | - | - | - | - | √ | √ | - | - | |
| DLW-1250 | | - | - | - | - | - | - | - | - | - | - | √ | |
| DLW-1251 | | - | - | - | - | √ | - | - | - | - | - | √ | |
| DLW-1252 | | - | - | - | - | - | √ | - | - | - | - | √ | |
| DLW-1253 | | - | - | - | - | √ | √ | - | - | - | - | √ | |
| DLW-1254 | | - | - | - | - | - | - | √ | √ | - | - | √ | |
| DLW-1255 | | - | - | - | - | - | - | - | - | √ | - | √ | |
| DLW-1256 | | - | - | - | - | - | - | - | - | - | √ | √ | |
| DLW-1257 | | - | - | - | - | - | - | √ | - | - | - | √ | |
| DLW-1258 | | - | - | - | - | - | - | - | √ | - | - | √ | |

# DLW-1 3 X C

3 : Wind Speed, Wind Direction, Sea Level, RH/T, Pressure,

**2 :** PM1/2.5/10+Particle
**3 :** PM1/2.5/10+Particle+CO+$CO_2$
**4 :** $NH_3$
**5 :** $O_2$

**1 :** CO
**2 :** $CO_2$
**3 :** CO+$CO_2$
**4 :** HCHO+TVOC
**5 :** $NH_3$
**6 :** $H_2S$
**7 :** HCHO
**8 :** TVOC

| DLW-13XX Series | Sensor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Weather Monitoring | | | | Particulates | Gas Monitoring | | | | | | | |
| | Wind Speed Wind Direction Temperature Humidity | Pressure Sea Level | Illuminance | Precipitation | PM1 PM2.5 PM10 Particle | CO | $CO_2$ | HCHO | TVOC | $NH_3$ | $H_2S$ | $O_2$ | Mechanical |
| DLW-1300 | | | - | - | - | - | - | - | - | - | - | - | C |
| DLW-1301 | | | - | - | - | √ | - | - | - | - | - | - | |
| DLW-1302 | | | - | - | - | - | √ | - | - | - | - | - | |
| DLW-1303 | | | - | - | - | √ | √ | - | - | - | - | - | |
| DLW-1304 | | | - | - | - | - | - | √ | √ | - | - | - | |
| DLW-1305 | | | - | - | - | - | - | - | - | √ | - | - | |
| DLW-1306 | | | - | - | - | - | - | - | - | - | √ | - | |
| DLW-1307 | | | - | - | - | - | - | √ | - | - | - | - | |
| DLW-1308 | | | - | - | - | - | - | - | √ | - | - | - | |
| DLW-1320 | | | - | - | √ | - | - | - | - | - | - | - | |
| DLW-1321 | | | - | - | √ | √ | - | - | - | - | - | - | |
| DLW-1322 | | | - | - | √ | - | √ | - | - | - | - | - | |
| DLW-1323 | | | - | - | √ | √ | √ | - | - | - | - | - | |
| DLW-1324 | | | - | - | √ | - | - | √ | √ | - | - | - | |
| DLW-1325 | | | - | - | √ | - | - | - | - | √ | - | - | |
| DLW-1326 | | | - | - | √ | - | - | - | - | - | √ | - | |
| DLW-1327 | | | - | - | √ | - | - | √ | - | - | - | - | |
| DLW-1328 | | | - | - | √ | - | - | - | √ | - | - | - | |
| DLW-1334 | | | - | - | √ | √ | √ | √ | √ | - | - | - | |
| DLW-1335 | √ | √ | - | - | √ | √ | √ | - | - | √ | - | - | D |
| DLW-1336 | | | - | - | √ | √ | √ | - | - | - | √ | - | |
| DLW-1337 | | | - | - | √ | √ | √ | √ | - | - | - | - | |
| DLW-1338 | | | - | - | √ | √ | √ | - | √ | - | - | - | |
| DLW-1341 | | | - | - | - | √ | - | - | - | √ | - | - | |
| DLW-1342 | | | - | - | - | - | √ | - | - | √ | - | - | |
| DLW-1343 | | | - | - | - | √ | √ | - | - | √ | - | - | |
| DLW-1344 | | | - | - | - | - | - | √ | √ | √ | - | - | |
| DLW-1346 | | | - | - | - | - | - | - | - | √ | √ | - | |
| DLW-1347 | | | - | - | - | - | - | √ | - | √ | - | - | |
| DLW-1348 | | | - | - | - | - | - | - | √ | √ | - | - | |
| DLW-1350 | | | - | - | - | - | - | - | - | - | - | √ | |
| DLW-1351 | | | - | - | - | √ | - | - | - | - | - | √ | |
| DLW-1352 | | | - | - | - | - | √ | - | - | - | - | √ | |
| DLW-1353 | | | - | - | - | √ | √ | - | - | - | - | √ | |
| DLW-1354 | | | - | - | - | - | - | √ | √ | - | - | √ | |
| DLW-1355 | | | - | - | - | - | - | - | - | √ | - | √ | |
| DLW-1356 | | | - | - | - | - | - | - | - | - | √ | √ | |
| DLW-1357 | | | - | - | - | - | - | √ | - | - | - | √ | |
| DLW-1358 | | | - | - | - | - | - | - | √ | - | - | √ | |

## I/O Specifications

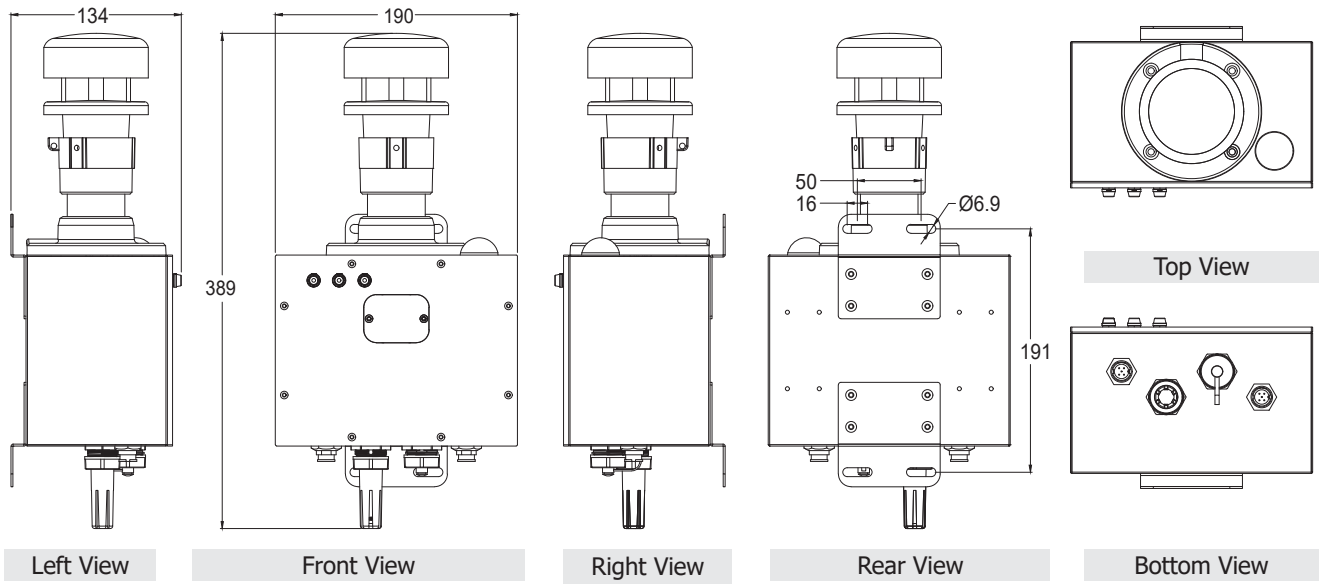
| Mini Weather Station(Standard Specifications) | | | | | | |
|---|---|---|---|---|---|---|
| **Type of Sensor** | **Range** | **Accuracy** | **Resolution** | **Response Time** | **Warn-up Time** | **Life Time** |
| **Wind Speed** | 0 ~ 40 m/s | 5% | 0.01 m/s | - | - | 10 years |
| **Wind Direction** | 0 ~ 359° | <3° | 1° | - | - | 10 years |
| **Pressure** | 300 ~ 1200 hPa | 1 hPa | 0.1 hPa | - | - | 10 years |
| **Precipitation** | 0 ~ 100 mm/hr | ±10% | 0.01 mm/hr | - | - | 10 years |
| **Sea Level** | -50 ~ 9000 m | - | 0.1 m | - | - | 10 years |
| **Temperature** | -40 ~ +80℃ | ±0.5℃ | 0.1℃ | - | - | 10 years |
| **Humidity** | 0 ~ 100% | ±5% | 0.1% | - | - | 10 years |
| **Illuminance** | 0 ~ 200,000 Lux | ±5% | 1 Lux | - | - | 10 years |
| **PM1.0/2.5/10 (Note1)** | 0 ~ 1000 μg/m$^3$ | ±10% | 1 μg/m$^3$ | 1 seconds | 20 seconds | 5 years |

**Note1 : The filter patch (FLT-C004) is replaceable**

| Mini Weather Station(Gas Sensor Optional Specifications) | | | | | | |
|---|---|---|---|---|---|---|
| **Gas Sensor** | **Range** | **Accuracy** | **Resolution** | **Response Time** | **Warn-up Time** | **Life Time** |
| **CO** | 0 ~ 1000 ppm (Electrochemical) | ±5% | 1 ppm | 30 seconds | 60 seconds | 5 years |
| **$CO_2$** | 0 ~ 9999 ppm (NDIR) | ±3% | 1 ppm | 120 seconds | 300 seconds | 15 years |
| **HCH0** | 0 ppb ~ 2000 ppb (Electrochemical) | ±10% | 1 ppb | ≤ 60 seconds | 180 seconds | 3 years |
| **TVOC** | 0 ppb ~ 60000 ppb (MEMS Metal Oxide) | ±15% | 1 ppb | 60 seconds | 180 seconds | 5 years |
| **$NH_3$** | 0 ~ 100 ppm (Electrochemical) | ±5% | 1 ppm | < 40 seconds | 60 seconds | 2 years |
| **$H_2S$** | 0 ~ 100 ppm (Electrochemical) | ±5% | 1 ppm | < 30 seconds | 60 seconds | 2 years |
| **$O_2$** | 0 ~ 25% (Luminescence for O2 sensor) | ±2% | 0.01% | < 30 seconds (typical) | 120 seconds | 5 years |

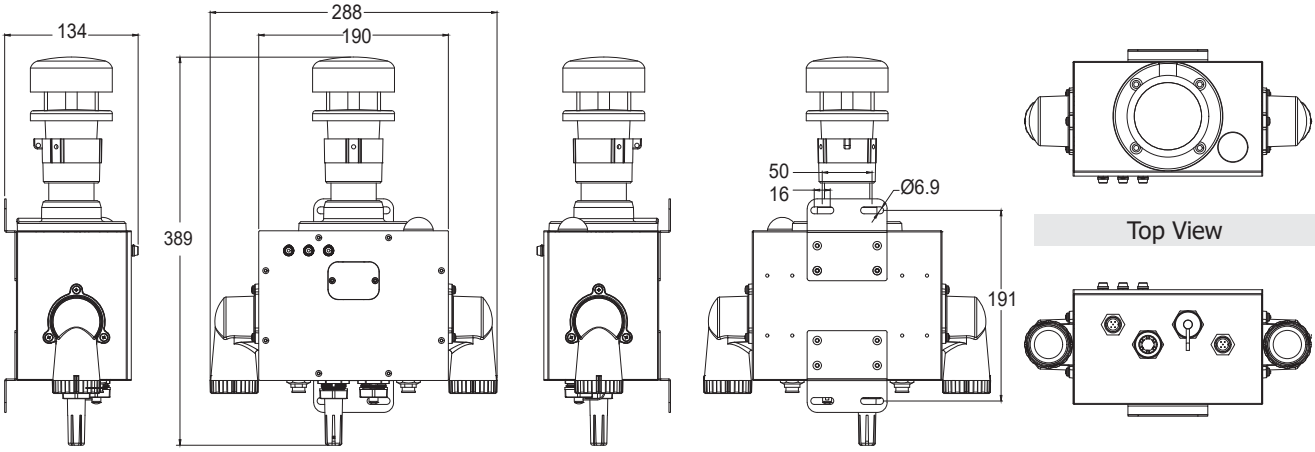
## Dimensions (Units: mm)

**DLW-1000/DLW-1100** **Type: A**



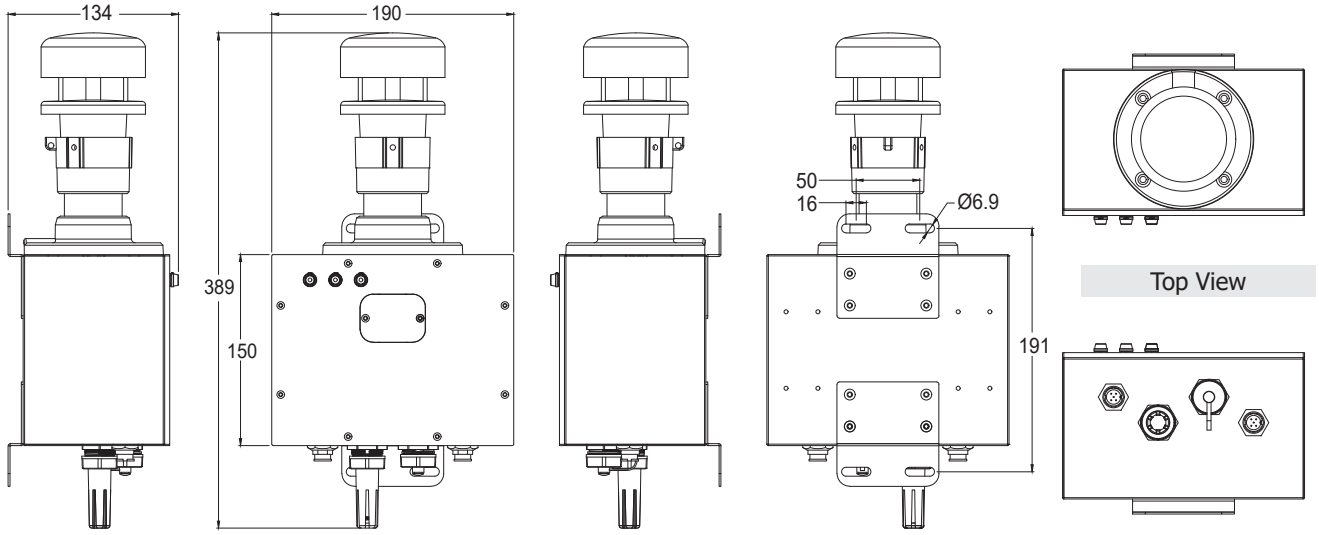
## Dimensions (Units: mm)

### DLW-10XX/DLW-11XX Type: B



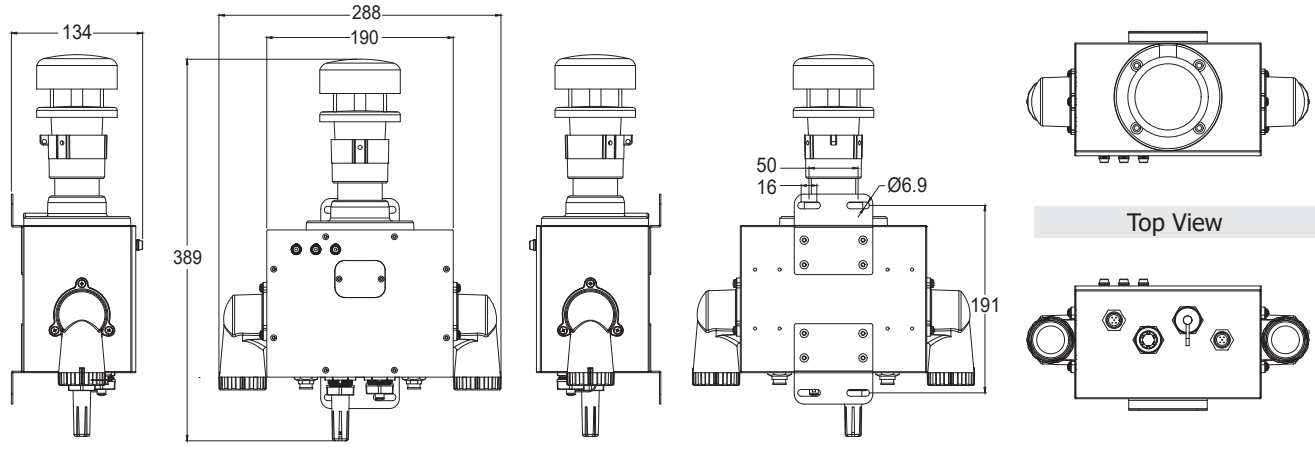

Left View | Front View | Right View | Rear View | Top View | Bottom View

### DLW-1200/DLW-1300 Type: C




Left View | Front View | Right View | Rear View | Top View | Bottom View

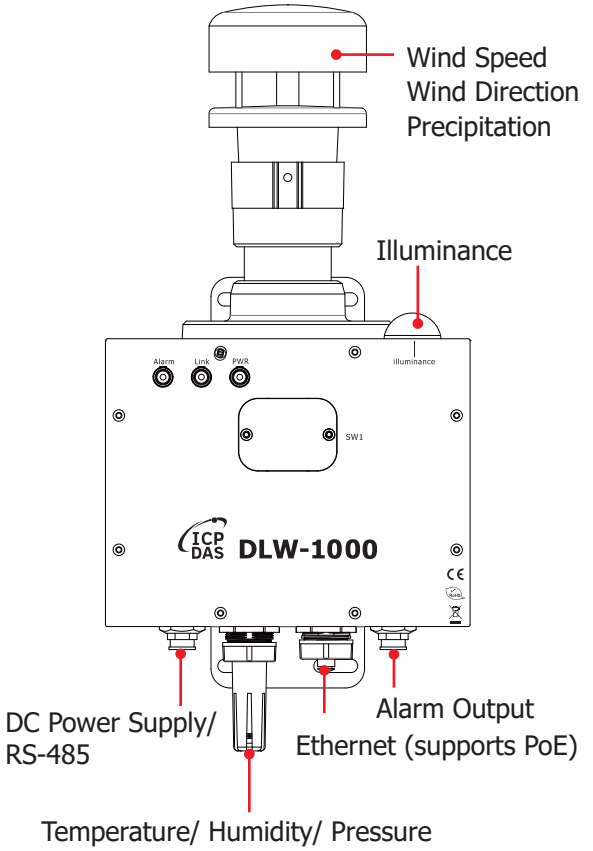
### DLW-12xx/DLW-13xx Type: D



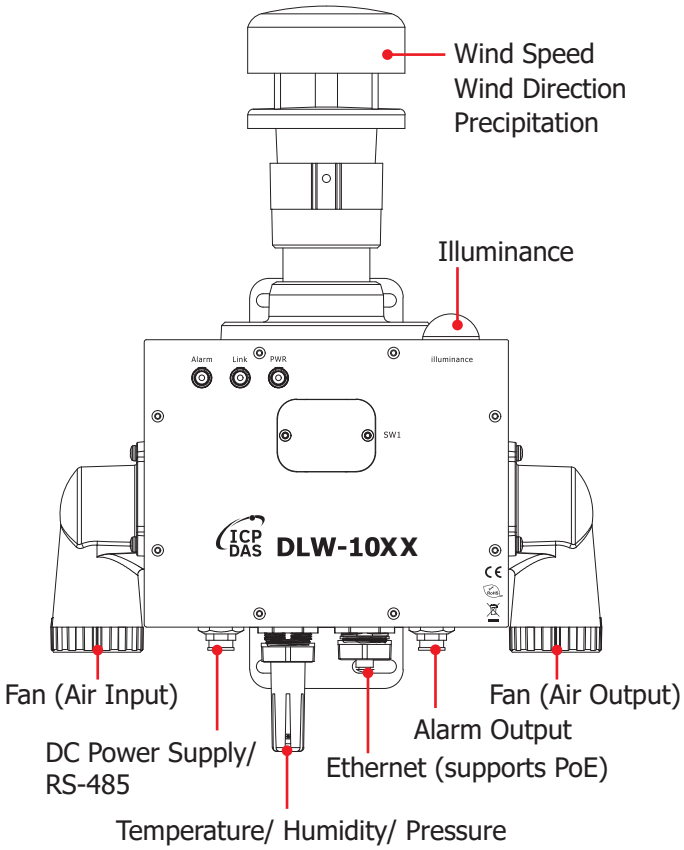

Left View | Front View | Right View | Rear View | Top View | Bottom View

## Appearance

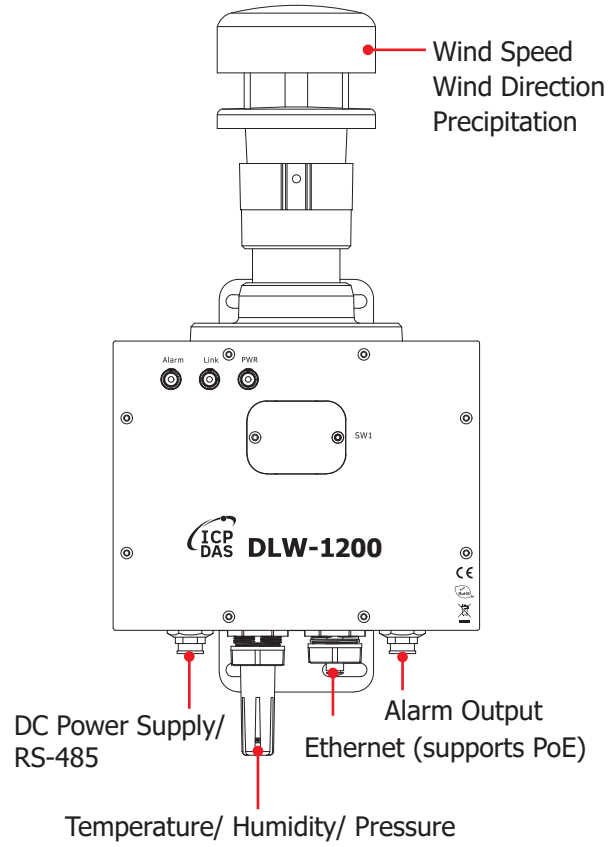
### DLW-1000/DLW-1100 Type: A



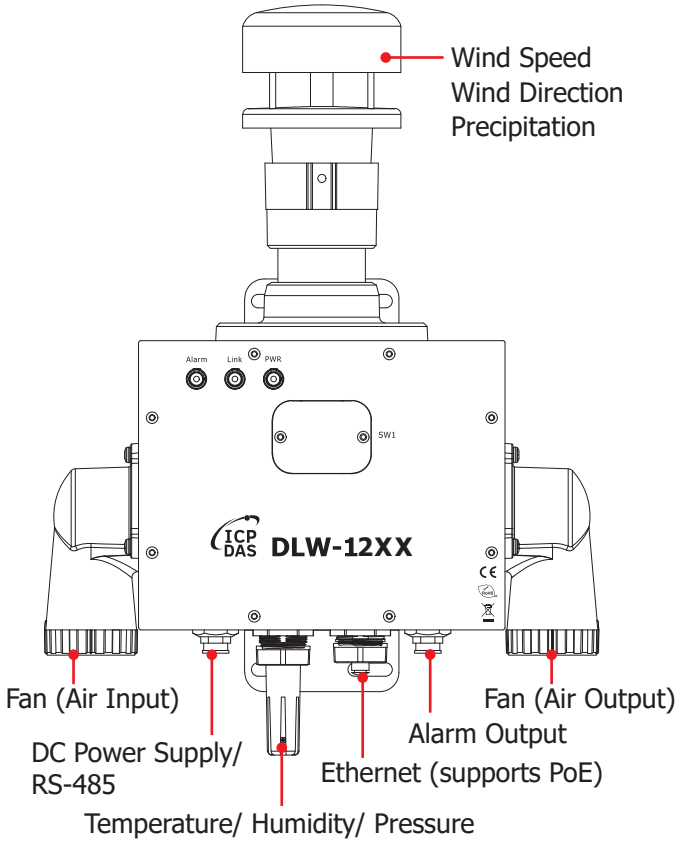

### DLW-10XX/DLW-11XX Type: B




### DLW-1200/DLW-1300 Type: C

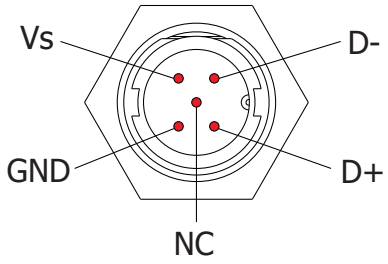



### DLW-12xx/DLW-13xx Type: D

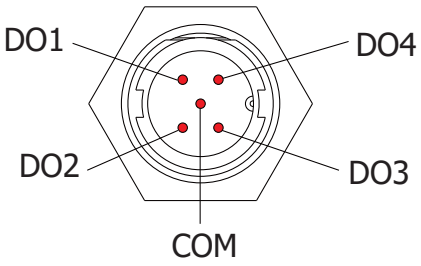


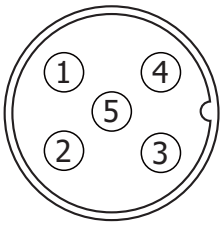
## Pin Assignments

**Power & RS-485**

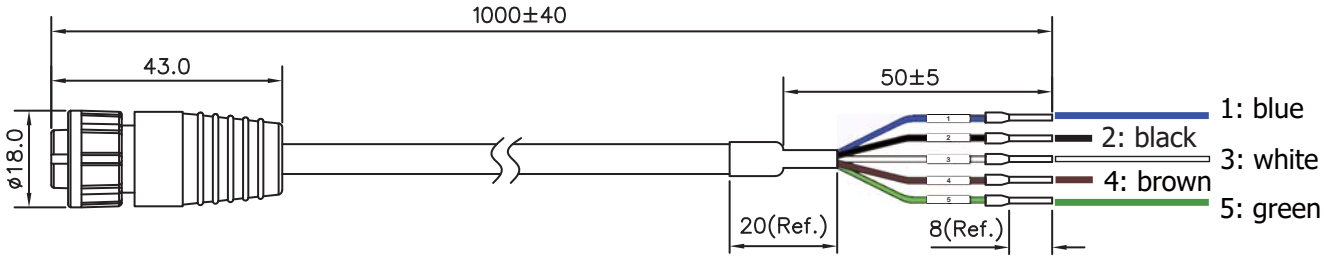



**Alarm Output**



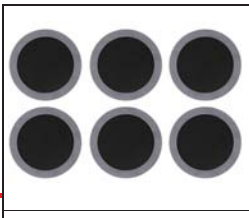




## Standard Accessories




| | |
|---|---|
| | **CA-05BFFM-LL7A01** |
| **1m waterproof line** | for Power & RS-485, Alarm Output |

| | |
|---|---|
| | **4SASO-0001** |
| **IP67 RJ45 Plug** | for Ethernet |

| | |
|---|---|
|  | **FLT-C004** |
| **Filter Patch** | Replaceable Filter Patch (Circle) (1 Pack 6 Patches) Size: (OD :35.5 · ID:30.6)mm |